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REPORT ON PUBLIC WATER SUPPLIES AND WATER SUPPLY TRAINING IN BRAZIL

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Report

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BRAZIL

U. S. DEPARTMENT OF
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Division of Environmental Engineering
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At the request of the U. S. Agency for International Development, public water supplies and water supply operators' training were surveyed in Brazil in January 1965. It was found that water supply construction was progressing well in several areas. Water supply operators' training was found to be the greatest need with respect to obtaining satisfactory operation and maintenance of existing and future water supplies.

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DIGEST

At the request of the United States Agency for International Development, a two-man team of Public Health Service Engineers surveyed public water supplies and water supply operators training in Brazil from January 12 to January 29, 1965. The team traveled the coastal perimeter of Brazil from Belem to Rio de Janeiro and made inland trips to Abaetetuba, Sao Paulo and Curitiba. It was found that water supply construction is progressing well in several areas. Water supply operators training was found to be the greatest need with respect to obtaining satisfactory operation and maintenance of existing and future water supplies. The USAID/Brazil Water Supply Division is making a major effort to promote water supply training and Brazilian agencies are devoting much attention to it. USAID/B and the Brazilians have requested help from the Public Health Service in the form of three full-time training advisors and additional short-term consultants to be financed by USAID/B. The Public Health Service should respond favorably to this request soon.

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REPORT ON PUBLIC WATER SUPPLIES AND WATER SUPPLY TRAINING IN BRAZIL*

Introduction

The United States of Brazil have embarked upon a national program for providing and improving public water supplies. If this program is successful, it will solve Brazil's No. 1 health problem, namely, the furnishing of adequate and safe water for its citizens. The success of the program is also politically significant as a regime which is successful in providing adequate water supplies will be given much credit by the Brazilian people. The present government is therefore vitally interested in this activity.

The Agency for International Development (USAID Brazil) has been encouraging Brazilian authorities to achieve their objective by two programs: (1) the establishment of a revolving loan fund for financing water supply construction and (2) the promotion of training of water supply operators so that once a supply is built, it will be properly maintained and operated. Work is progressing on the revolving fund and one of the USAID sanitary engineers has been devoting full time towards accomplishing the second program.

At the request of the USAID-Brazil Director, the Public Health Service sent a two-man engineering team to Brazil, where they spent three weeks surveying water supplies and water supply training centers. The purpose was to gain first-hand knowledge of water supply conditions and whether existing and planned training efforts would afford a reasonable hope for

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* A report by Floyd B. Taylor, Chief, Water Supply Section, Division of Environmental Engineering and Food Protection, and Leonard M. Board, Acting Chief, International Relations Division, Office of International Health, Public Health Service, who were the surevey team.

solving the operation and maintenance problem. Specifically, the team had as its objective, determining the feasibility of sending to Brazil for a three-year period, a three-man group of Public Health Service water supply training advisors. While in Brazil one of the team was informed by the USAID Deputy Director, that this project was vital to the success of the Mission. The following report describes the findings of the survey team.

General

Brazil is a vast and beautiful country, comprised of 21 states, and four territories and the federal district of Brazilia. Its area is 3,286,169 square miles and one of its average states, Bahia, is about the size of France. Most of the 82,000,000 inhabitants of Brazil live in the coastal states and 45% are in urban centers. The largest of these are Rio de Janeiro (3,500,000) and Sao Paulo (3,800,000). There are several state capitals and other cities numbering in the hundreds of thousands, but the great bulk of the communities have less than 50,000 people. However, nearly all urban centers are expanding, many at several times the national population growth rate of 7% per year.

Brazil possesses great national resources, including high-grade iron ore, coal, timber, oil, rubber and precious stones. Its agriculture excels in growing large amounts of coffee and sugar cane; tropical fruits grow naturally in abundance and also are cultivated.

Although most of Brazil has an abundance of rainfall - 75 to 100 inches annually on coastal regions and 300 to 400 inches over the interior rain forests - a large area of the Northeast is a virtual desert. The rainfall feeds the world's most extensive system of rivers. In addition to the Amazon, whose 1962 mile main length drains 672,000 square miles, there are five other

great river systems. Water quantity is, therefore, not a problem - the problem is to continuously collect, purify and deliver it to the people. As one Brazilian remarked recently, "How is it we have so much water all around us and so little coming out of the faucet?"

Brazil's climate is tropical, but even along the Amazon valley, temperatures do not often exceed 90°F. In the South the atmosphere is temperate and nowhere in Brazil except for a small part of Santa Catarina is freezing weather encountered. This, of course, simplifies the handling of water supply.

A feature which does greatly affect water supply production is transportation. Because of the inadequacy of good roads and railroads, the principal forms of transportation are boat and air. The former is slow and only the major cities have modern airports. There are, however, many airstrips and the rivers serve as landing areas for amphibious aircraft. For this reason, supplying parts for broken-down machines is often a major problem, as is also the initial transportation of heavy equipment. In spite of these difficulties there has been marked progress in water works construction.

Public Water Supply in Brazil

Public water suppiies when found are mainly in municipalities having populations in excess of 5000 persons. According to the 1960 census there are 24,250,000 people living in 720 urban centers having over 5000 people. Of these urban dwellers only 53.5% live in homes connected to public water supplies. An undetermined but considerably smaller number benefit from public water taps. The remainder of Brazilians depend upon traditional water supply methods such as shown by Figures 1, 2, 3, and 4.

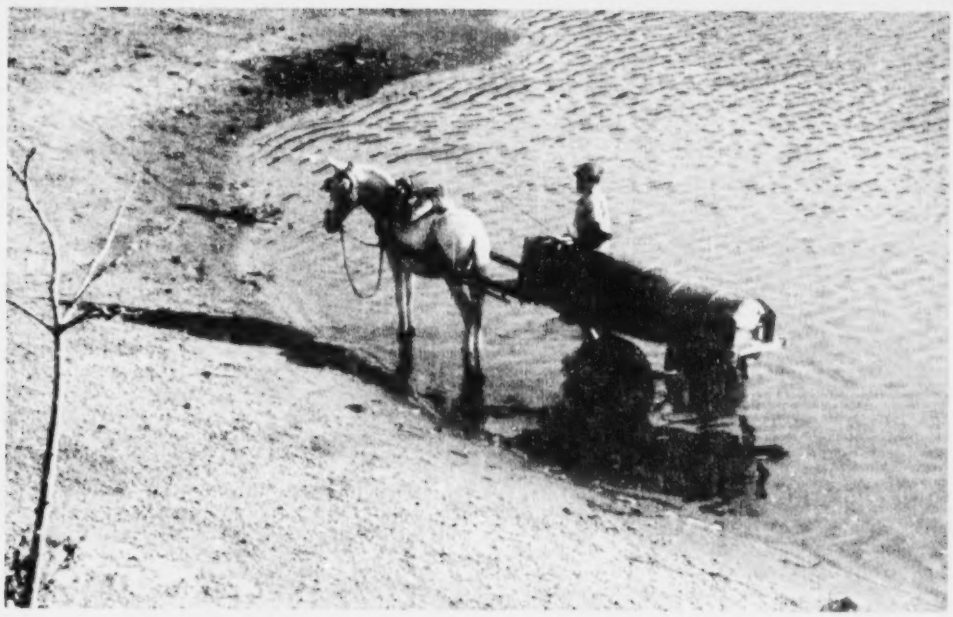


FIGURE 1. THE VILLAGE WATER MAN

FIGURE 2. BRAZILIAN GIRLS HELP WITH THE WATER HAULING

FIGURE 3. FILLING THE HOME WATER CONTAINER

FIGURE 4. A LARGER SUPPLY FURNISHED BY WATER BARREL

The future of public water supply construction depends largely upon the availability of funds. According to the plan of the Charter of Punta del Este, 70% of Brazil's urban population should be furnished water from public supplies by 1970. Were this to be accomplished, facilities must be provided by then for an additional 16,000,000 consumers at an estimated cost of 182 billion cruzeiros (at today's value). The revolving fund supported by AID is based on the concept that 58% of the necessary capital would be in the form of Federal grants and loans to be provided through the fund. The balance would be state grants and municipal contributions.

Brazilian engineers are capable of building nearly any kind of concrete structure. The climate and relative freedom from earthquakes have facilitated the use of thin sections and the skill of the form builders has made it possible to construct a great variety of geometric shapes. It was, therefore, not unusual to observe many types of water plant structures.

In the north and northeast the typical village public water supply is an "Amazon" well with turbine pump, well house, and an elevated tank such as shown by Figures 5, 6, 7, and 8. Much larger and more sophisticated works are provided for principal cities such as Salvador (population 600,000) in Bahia State. Figures 9 through 12 illustrate the kind of treatment-plant construction and excellent mechanical-equipment installations of which the Brazilians are capable. This plant was dedicated by Brazil's President, Costello Branco on August 9, 1964.

There is a growing industrial capacity for manufacturing in Brazil, most of the mechanical equipment which is required for a water treatment

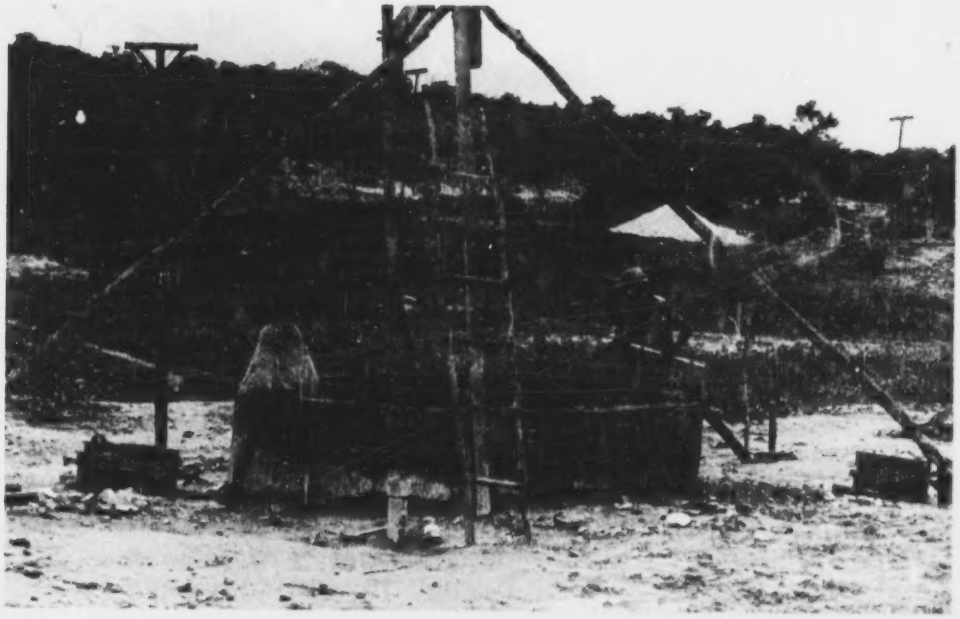


FIGURE 5. AMAZON WELL UNDER CONSTRUCTION AT NATAL

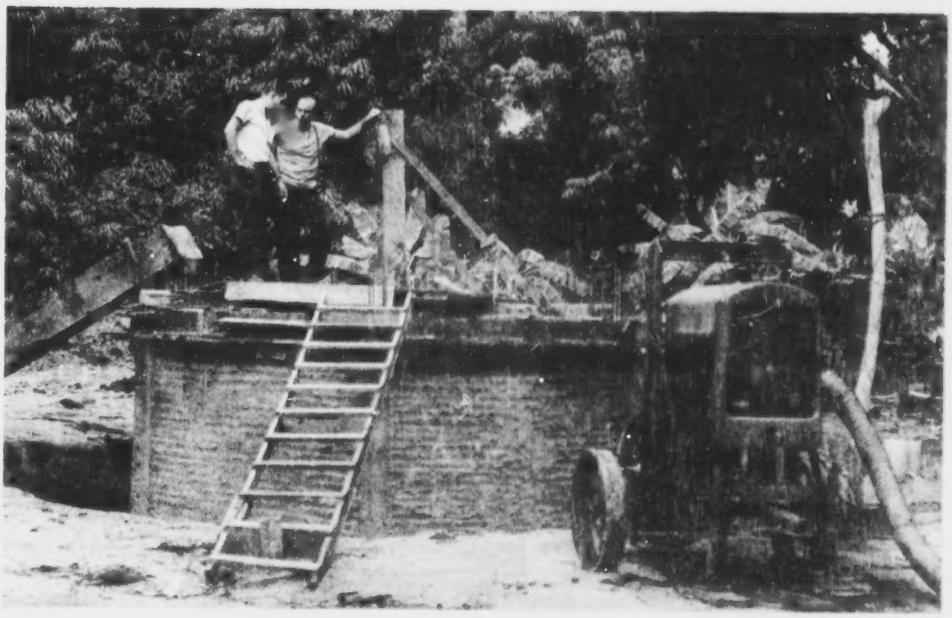
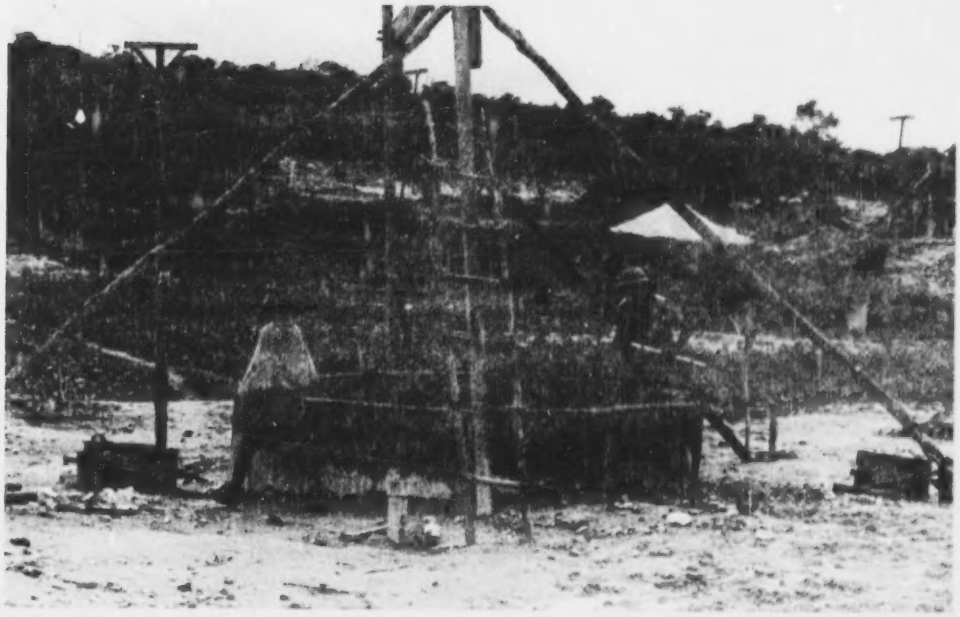


FIGURE 6. TAPPING SAND DUNES AT FORTALEZA
WITH AN AMAZON WELL



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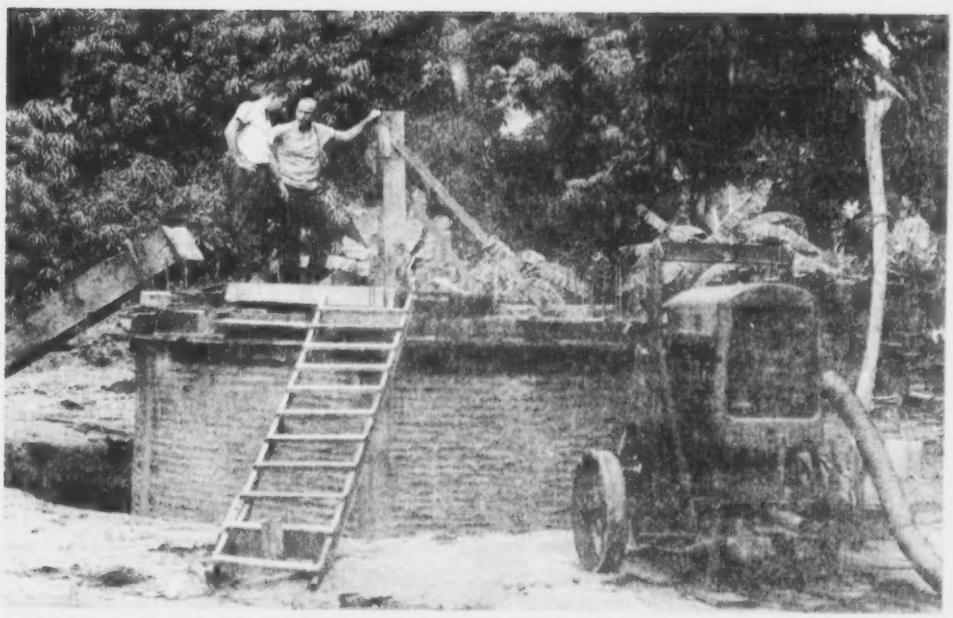

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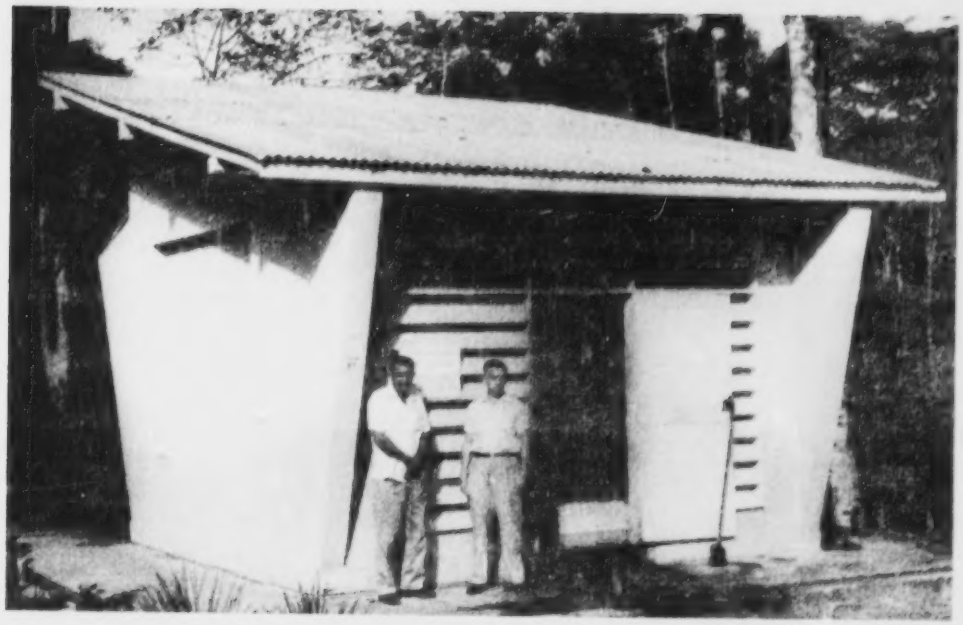

FIGURE 7. TYPICAL AMAZON WELL HOUSE - S. ISABEL DO ARAGUAIA, PARA STATE

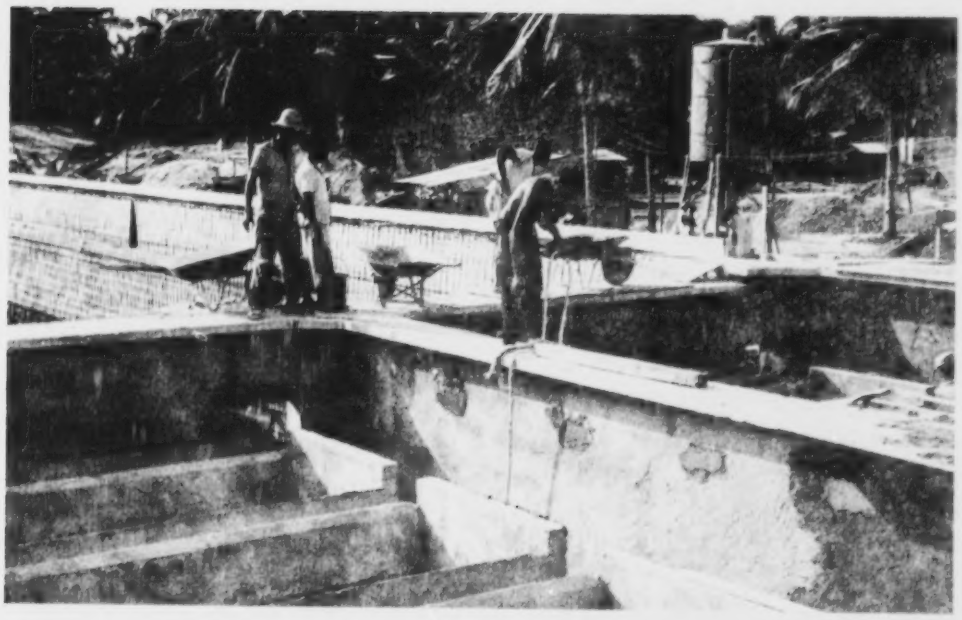

FIGURE 9. FILTERS NEARING COMPLETION - SALVADOR, BAHIA

FIGURE 8. WATER TOWER TYPICAL OF THOSE BEING CONSTRUCTED FOR 58 NORTHEAST COMMUNITIES

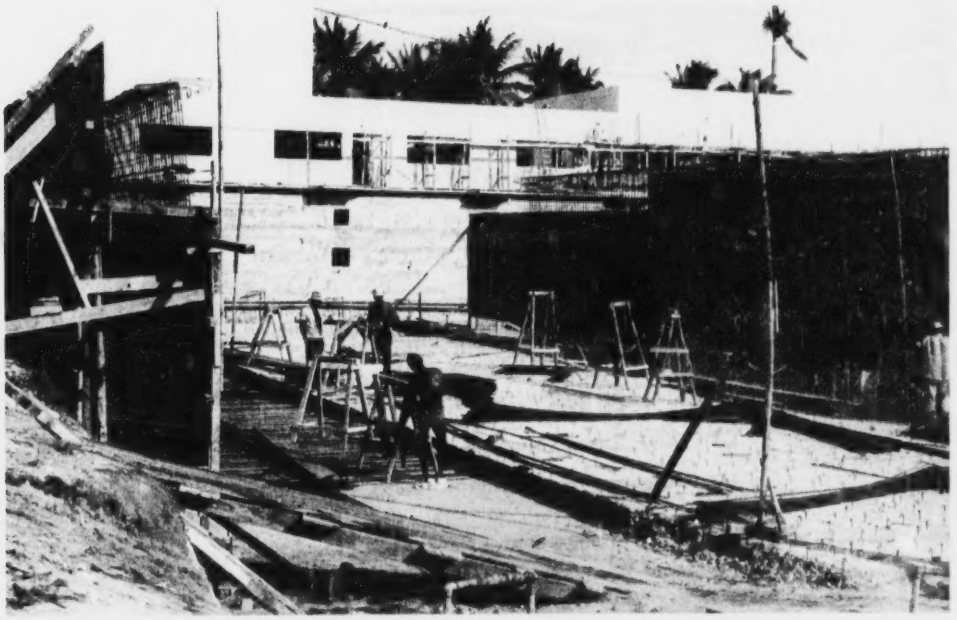

FIGURE 10. VIEW OF SETTLING BASINS UNDER CONSTRUCTION AT SALVADOR, BAHIA

FIGURE 13. NEW SETTLING BASIN AT GUANDU RIVER PLANT - GUANABARA STATE

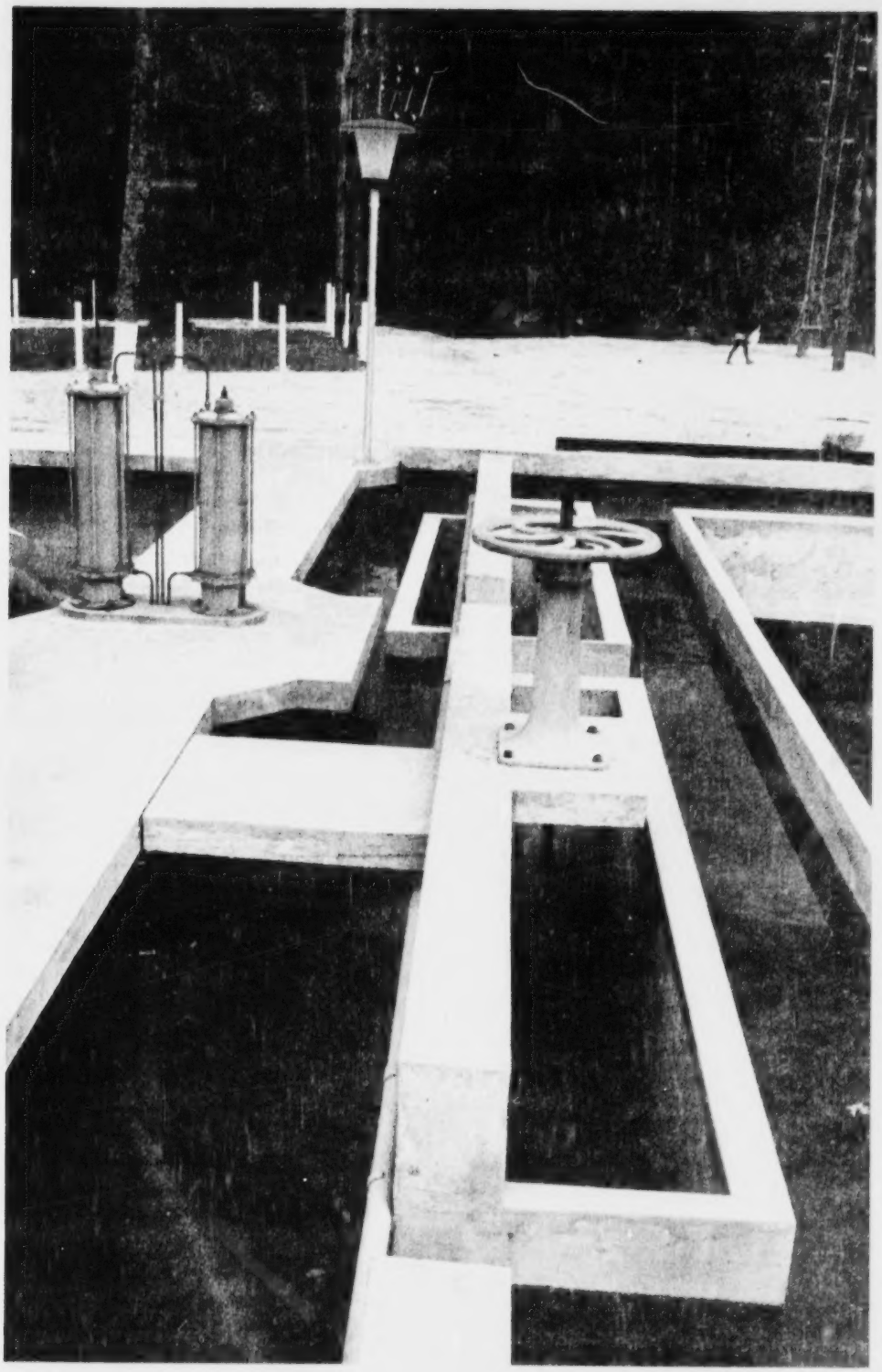

FIGURE 11. HYDRAULIC VALVES AT SALVADOR'S PLANT

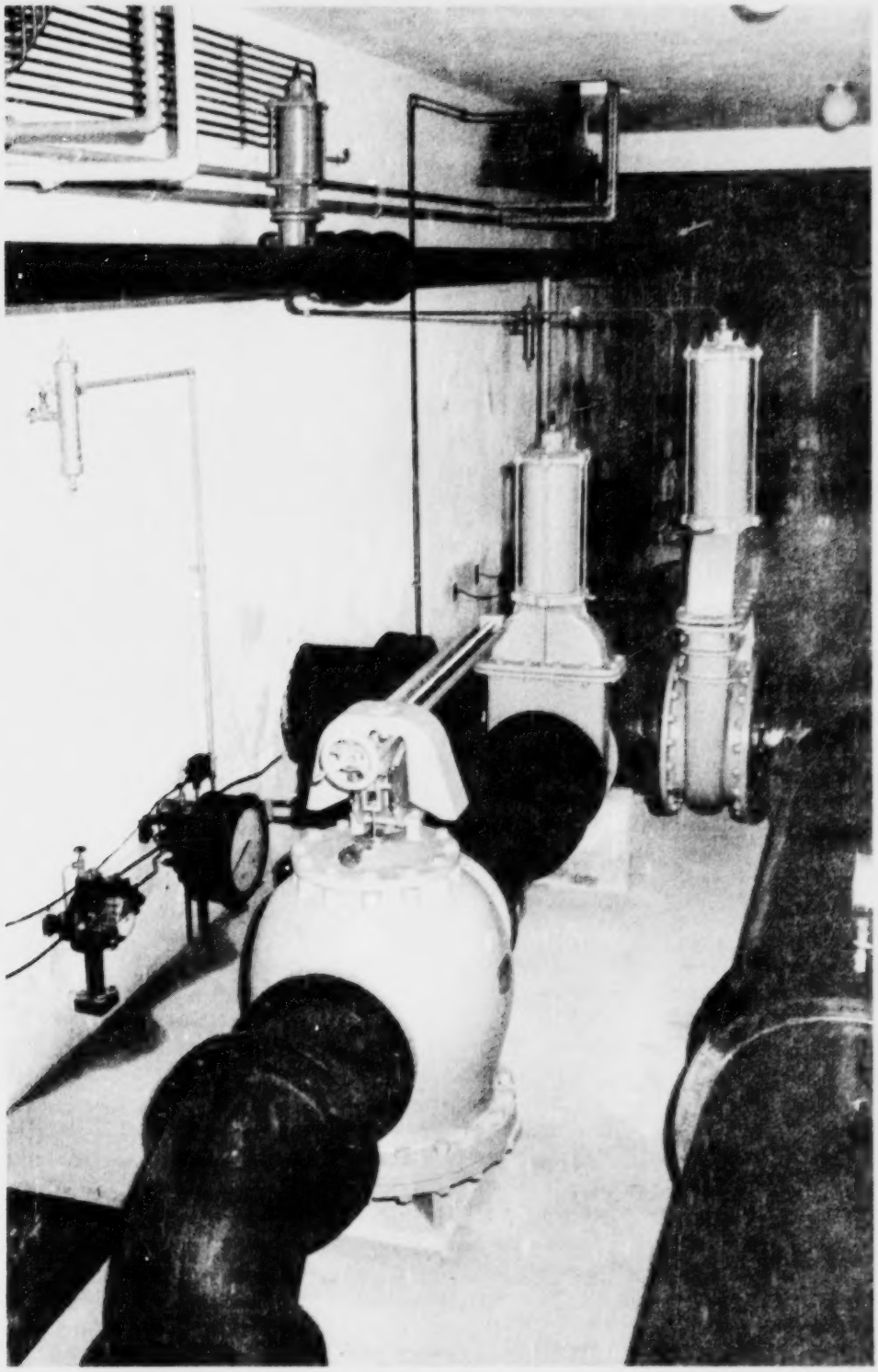

FIGURE 12. VIEW IN PIPE GALLERY - SALVADOR FILTER PLANT

plant. Pumps, motors, valves, chemical feeders and other devices which are needed are being produced there and their quality appeared to be good.

At Rio de Janeiro the team observed some of the finest examples of water works construction. Engineer Antonio Miranda, Assistant Director of SURSAN (Superintendencia de Urbanizacao e Saneamento) the Guanabara Urbanization & Sanitation Authority, took the team to the Guandu River works where low lift pumps, settling tanks and conduits are being constructed which will make possible the supplying of sufficient water for all of Rio de Janeiro. Figures 13, 14, and 15 illustrate the massiveness and complexity of this project.

Once a water works is constructed, however, there ensue serious problems of operation and maintenance. Here are some examples. The team visited the Guandu Filter Plant which serves the City of Rio de Janeiro. Constructed in 1955, this plant contains many modern features such as rapid sand filters equipped with air wash and sand traps. In 1958 the Patterson sludge collectors on several settling basins broke down due to some mechanical failure and they were still unrepaired in January 1965. Another filter plant was visited at Goiana in Pernambuco State. This small but neat and compact installation was built but three years ago and contained a diesel engine driven pump as one of the main units. Eight months ago a small part in this unit broke and because of this the community has been without treated water for that length of time.

The third case is shown by Figure 16. This modern and excellently built elevated water storage tank was constructed at Carpina six years ago

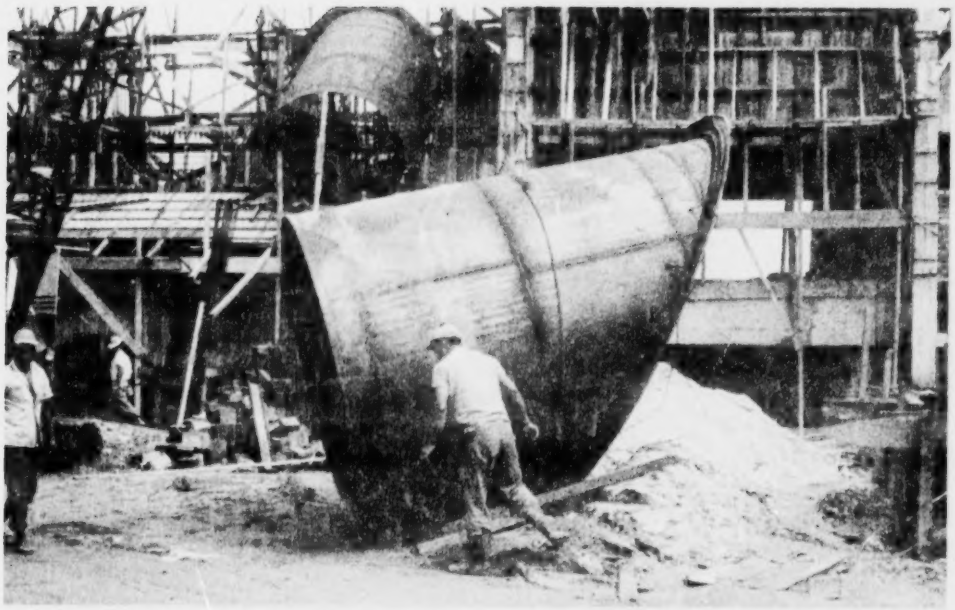

FIGURE 14. LOW LIFT PUMPS DISCHARGE PIPES AT GUANDU RIVER PLANT - GUANABARA STATE

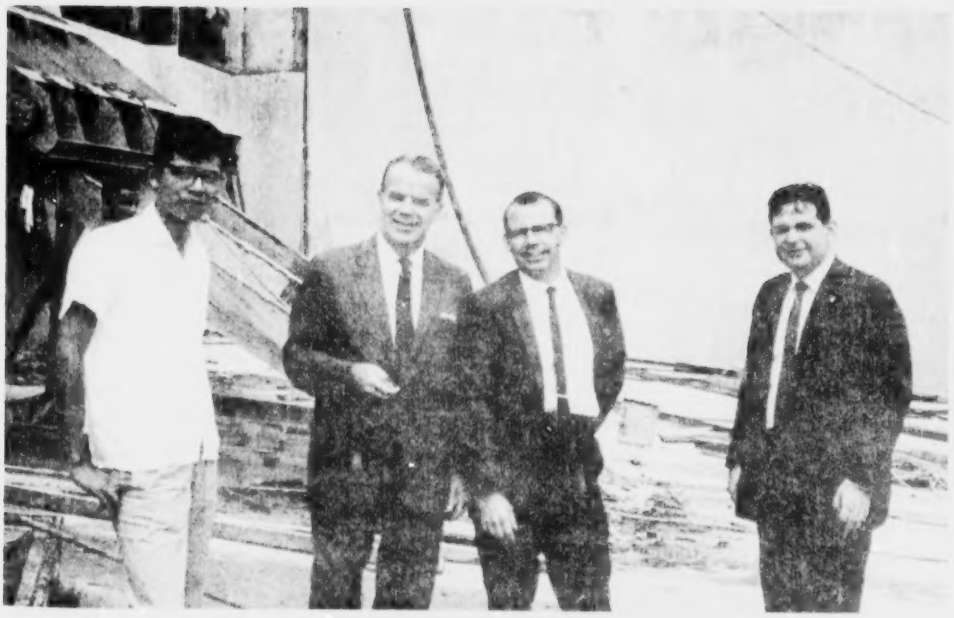

FIGURE 15. GUANABARA STATE GUANDU RIVER PLANT UNDER CONSTRUCTION

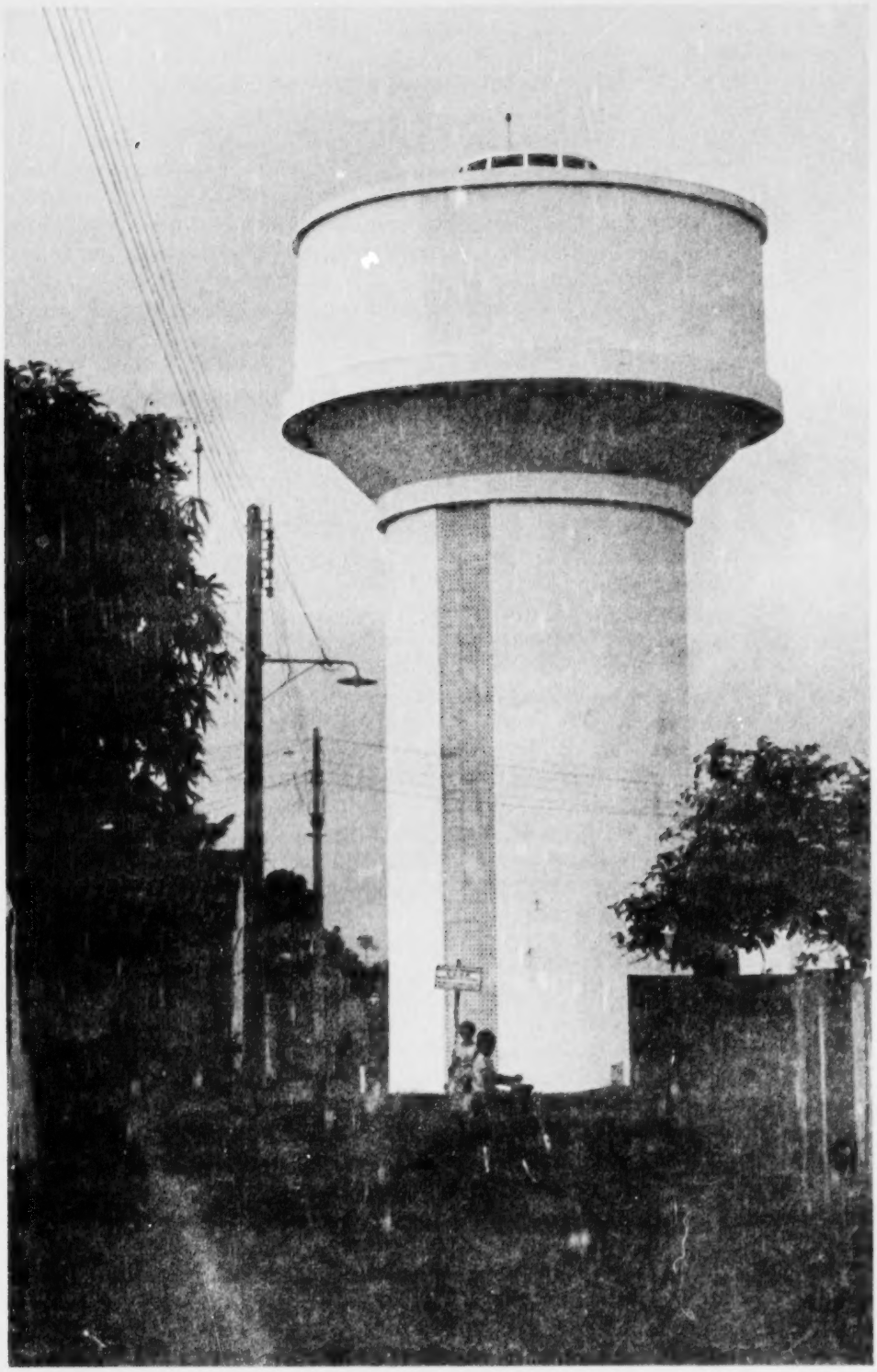

FIGURE 16. ELEVATED WATER STORAGE TANK AT CARPINA

and has never been used for holding water.

In addition to the direct observations of the team, its members were advised by several authorities including AID officials, consulting engineers for the Inter-American Development Bank and many Brazilians, that the principal problem of continuously supplying drinking water from an established plant was operation and maintenance.

The supply of parts is important in solving this problem. However, of far greater importance is the training of water works operators and officials so that they will know what to do and have the will to do it. There is also the need to develop the concept and practice of a rapport between the water supply engineers of Brazil and the water supply administrators and operators. While there is possibly the need to establish a personnel category intermediate between engineer and operator, it is deemed more practical and necessary to improve communications between the two.

It was noted that the Brazilians have great technical ability and resourcefulness. For example, at Belem the team was conducted on a tour of the FSESP maintenance shops. Workers were observed turning out parts for reconstructing second-hand well pumps. The workmanship was excellent and through this effort the maintenance foreman had built up a sizable store of replacement pumps and motors for servicing water supplies in Para State.

Water supply construction differs in the various regions of Brazil and so does the present state of operator-training programs. The training effort longest established is in the Northeast where several organizations have been working for many years. Recently the south of Brazil has become

active and even since the return of the team there has been a request to AID to provide an officer for a new training project in Sao Paulo State.

It is pertinent to know what organizations are engaged in water supply training in Brazil and what they are doing.

Organizations Engaged in Water Supply Training

Organizations are in two categories - indigenous and externally based. It is to the indigenous that one must look for the sustained sponsorship and conduct of training programs, and several are active in this area. They and their relation to training are described below in the order of the extensiveness of their effort.

1. The Fundacao Servico Especial de Saude Publica (FSESP) is an arm of the Brazilian Ministry of Health. FSESP had its roots in the health work started in Brazil prior to World War II by the Rockefeller Foundation and was formally constituted with United States financial assistance and staff during the early 1940s. From its inception to the present, FSESP has emphasized training in many health fields and particularly water supply. FSESP also constructs and maintains water works systems. The team spent much time visiting FSESP at its installations and discussing training problems with FSESP personnel.

FSESP has developed a major training thrust in the Northeast with headquarters in Recife and it is building a permanent structure there to house classrooms and laboratories. The Northeast training program has been under the very able leadership of Dr. Domingos de Lemos. In addition to training, FSESP in the Northeast has water works planned or under construction at 128 municipalities. Dr. Lavigne stated that it is planned to train 1000 persons in various phases of water supply over the next two

years and details of the plans for this work are found in Appendix I, "Plan of Work for Training Personnel in the Northeast."

FSESP also has a good work going in the well drillers training school at Fortaleza, under the direction of Engineer Barbosa. This effort has turned out over 200 graduates and it has excellent equipment including several types of well-drilling rigs. It is housed in the FSESP Fortaleza Headquarters building and compound and several views of the school and its students are shown by Figures 17 through 20.

FSESP has other training centers established near Belem and at Belo Horizonte which were not personally inspected by the team, but about which good reports were heard. The Belo school director, Engineer Olavo Raudel, however, visited Rio and was interviewed by the team. Mr. Raudel described the work at Belo and reported they had so far given four, two-week courses in water supply administration to a total of 70 students. An additional 90, he said, would be trained by May 1, 1965. Mr. Raudel expressed one of the central objectives of FSESP training programs. This is to pick the best qualified person in a community, train him, give him a training manual, and send him back to train others. Unless this geometric progression idea is followed, progress will be extremely slow.

2. The Superintendencia do Desenvolvimento do Nordeste (SUDENE) is a Federal organization which has as its objective the over-all development of the Northeast. SUDENE has been responsible for construction of a number of public water supplies and has shown some interest in training, but at the university level. For example, at the time of the visit, SUDENE was sponsoring a four-weeks course in water works design in Recife, conducted jointly by the Catholic University and the University of Pernambuco. It was their first training effort and there was no information as to whether

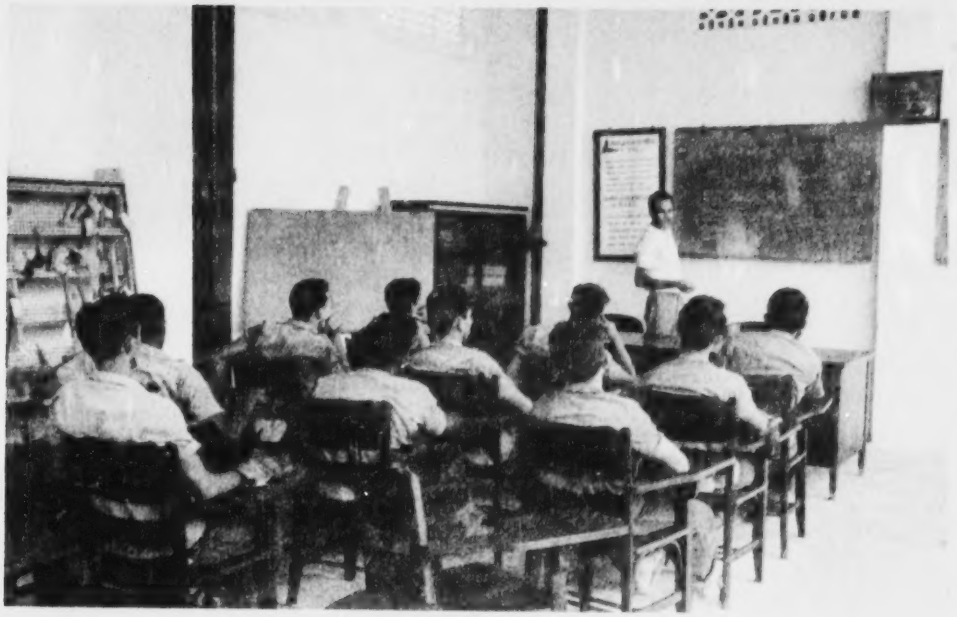

FIGURE 17. CLASSROOM AT FORTALEZA WELL DRILLERS SCHOOL

FIGURE 18. HARD OPEN AIR WORK AT FORTALEZA WELL DRILLERS SCHOOL

FIGURE 19. SERIOUS STUDENT AT FORTALEZA WELL DRILLERS SCHOOL

FIGURE 20. LEARNING THE ELEMENTS OF ROTARY WELL DRILLING FORTALEZA WELL DRILLERS SCHOOL

it would be repeated.

3. DNOCS, the Departemento Nacional dos Obras Contra Seca (National Department for Drought Relief) has sent men for training to the FSESP well drillers school at Fortaleza. Their objective, of course, is to use these trained people to alleviate the drought conditions in the Northeast.

4. The Departamento Nacional de Obras Sanitarias (DNOS) is the National Department of Sanitary Works in the Ministry of Public Works. It has been interested in training sanitary engineers, but at the professional and graduate levels and has done so by sending them to the United States. USAID programming and funds have been utilized by DNOS for this purpose.

5. Brazilian Universities. Good undergraduate courses in sanitary engineering design of water works are given at several universities including the Universities of Sao Paulo, Pernambuco, Parana, Guanabara and Minas Gerais. The team did not have time to visit these, but did talk to some of the professors and examine some of the course material. It was concluded that a high grade of instruction is afforded by the universities, but that it is oriented towards design and construction and not towards operation and maintenance.

6. Another indigenous training resource is the trade schools where instruction is available in various mechanical skills. It was not apparent that this resource was being utilized in any organized manner, such as encouraging the trade schools to give courses oriented towards water works operation and maintenance. Because the trade schools can reach many young people from whose ranks the subprofessional water supply personnel will come, this avenue for training should be thoroughly explored and developed.

7. A strong training effort is developing in Parana State at Curitiba where SANEPAR (Companhia de Saneamento do Parana) is conducting water works

training. The effort is as yet small and was described by Engineer Borsaris Neto as consisting of one course in water chemistry given to eight persons in November 1964 with a repeat planned for February 1965. The course was three weeks in duration with three days (long afternoons) each week. The method of teaching was by use of a Hach Direct Reading Engineer's Laboratory. Mr. Neto spoke of plans for additional courses in maintenance of water meters. During the discussion at SANEPAR headquarters, Dr. Omar Sabbag, Chief Engineer, DNOS, Parana State, voiced an important doctrine. Any move (training) forward is progress in an undeveloped country, he said, and in a few years the young people being trained now in water supply will change existing conditions for the better.

8. SURSAN, Superintendencia de Urbanizacao e Saneamento, which is the Water and Sewer Authority for Guanabara State (Rio de Janeiro) is keenly interested in mounting extensive training programs directed to the sub-professional level. Of particular concern to Engineer Eugenio Morand is the great need to train foremen, plumbers, chemists, plant (pump) operators, and most of all the laborers who make up the service crews. Concerning the latter, it was suggested by the team that they would most readily accept training from members of their own organization such as the foremen.

Mr. Miranda said that the first step must be to organize a specific training program for each category of the subprofessional force.

It was evident that SURSAN was eager to promptly organize and begin its training effort and it was deemed advisable to assist them as rapidly as possible.

Foreign or International Agencies

1. The first of these is USAID from which comes not only the financial help needed to encourage the training effort in Brazil, but also

the interest, drive and competence of an excellent professional staff. Training is considered by USAID to be one of its most important objectives. The team interviewed Dr. Wayne Gibson, Training Officer, USAID Brazil, who is interested in training of all kinds, but who emphasized the special importance of the water supply training effort.

On the staff of the USAID Water Supply Division in Rio, Mr. LaVerne D. Hudson, an engineer with a long and impressive record of accomplishment in the water supply field, has devoted full time for almost three years to promoting the concept and practice of training water supply personnel. The team observed that his work has made a tremendous impression upon the Brazilians from one end of the country to the other. The enthusiasm which he has kindled should not be allowed to lag, but should be reinforced by the prompt filling of additional training posts.

Other USAID engineers such as Mr. Donald Cullivan (Recife) and Mr. Edward Williamson (Curitiba) while not devoting full time to training are nevertheless doing all they can to encourage it.

An important aspect of direct USAID participation has been the sponsoring of Brazilians at U.S. universities and the personally conducted tours of U.S. water supplies by Brazilian engineers.

The Pan American Health Organization has sponsored four training courses in cooperation with local universities, in which 184 professionals have participated. Three courses were held in Sao Paulo: a) on administration, operation and financing of water supplies (16-29 April/61); b) on water works design (18 Nov.-14 Dec./63); c) on biological treatment of sewage and control of water pollution (7-19 Dec./64) and the fourth course was held in Recife, on design of small water supplies (18 Jan.-12 Feb./65).

For training abroad, the Organization has been providing a number of fellowships for participation in training courses, seminars, symposia and for graduate courses.

The Organization has signed agreements for technical cooperation with five professional schools and it is the executing agency for a UNSF project - the establishment of an Institute of Sanitary Engineering in Rio de Janeiro. Plans for 1965 are for a large expansion of training activities.

3. The Inter-American Development Bank (IDB) encourages training of water supply personnel by specifying in its water works construction loan agreements a certain amount of money to be used in traing the operators of the plant.

4. The United States Information Service also participates in the training effort. At Fortaleza the team met Mr. James Morehead, Northeast USIS representative and were shown a motion picture done by his office describing Dr. Barbosa's work at the well-drilling school. This film, it was reported, has been widely used. Another USIS resource is the production of visual aids for water supply training class use. In Rio the team made inquiry of the USIS information office and were advised that they could furnish such visual aids as charts, film strips, slides and overhead projection transparencies.

Some idea of current training activities has been conveyed by the above discussion. There follows some additional information and summary.

Current Training Activities

There are established training centers in Belem, Fortaleza, Recife, Belo Horizonte, Rio, Curitiba and Porto Alegre. Staffing is provided at

Belem, Belo Horizonte and Curitiba by fifteen Brazilian technicians and the well drillers school at Fortaleza is staffed by three instructors in addition to the school director. Guanabara State has appointed a new training director.

In addition to the established centers, there has been an extension of their effort through traveling FSESP-USAID/B training squads which have conducted seminars for water works personnel in communities of eight states. This new service has evoked an enthusiastic response from municipal officials and is also strengthening the state sanitary engineering agencies. It is the opinion of Mr. Hudson that cities under 200,000 will be dependent for training upon the technical resources of states and agencies such as FSESP for many years. It is, therefore, important to augment the FSESP and SURSAN programs by providing the additional full-time training advisors which have been requested by these organizations.

Additional training requests have been reveived from USAID/B and from state and federal departments of public works. These have asked for tailored, short term U.S. training for 32 additional engineers in "Waterworks Financing" and "Waterworks Design."

USAID/B is currently sponsoring 160 state and municipal sanitary engineers in on-the-job training through correspondence courses from the Pennsylvania State University.

An instrument through which USAID/B establishes water supply training is the Project Agreement or Contract. A typical example of a training agreement document is made Appendix II of this report. It defines the provision of funds to FSESP and COCAP (Comissao Coordenadora da Alianca para o Progresso) for the development of a regional training program for South Brazil.

A summary of the progress in training to date is found in the following Table 1.

Table 1.

Progress to January 1, 1965
in Participant Water Supply Training

Brazilian Training Centers		Processed or Trained to Date 1/1/65
North Brazil - Belem		43
Central Brazil - Belo		60
South Brazil - Curitiba		12
Guanabara - Rio		40
	Sub-total	155
U.S. & 3rd. Co. Training		
University of Akron		3
North Carolina		2
Special Studies		60
	Sub-total	65
Correspondence Courses in Brazil		
Awaiting Course Material		0
Receiving Course		17
Studying English		195
	Sub-total	212
	Grand Total	432

These figures are in addition to the FSESP trainees in the Northeast.

An additional facet of the USAID/B training promotion program is the distribution of technical literature. Progress in this area is described in Table 2.

Table 2.

Distribution of Technical
Water Supply Literature By USAID/B

Items Distributed	Total No. Distributed to 1/1/65
Technical books to agencies, individuals, etc.	5990
Technical pamphlets and reports to individuals and agencies	3000
Technical library books in sets	1305
3-year technical subscriptions to universities and design offices' publications	138
Bound volume Journal AWWA, WPCF, APHA, etc.	0
Grand Total	10,433

Training Requirements

The principal, future water supply training need of Brazil lies in the subprofessional personnel categories. These include administrators, foremen (repair and maintenance) plumbers, pump operators, laboratory technicians, well drillers and laborers on maintenance crews. An attempt was made to obtain job descriptions for these categories, but they do not exist. The name of the category is quite indicative of the work done by each except for the administrators. These are analogous to U.S. water supply superintendents. Their function is to keep the supply operating, collect the water rents, provide official reports to higher authorities and handle all budget and personnel matters. This is often professional level work but in Brazil the water supply administrators are not often

and will not for a long time be graduates of universities.

There is little precise information available as to the numbers of these people who should be trained, but some approximations have been made. Mr. Noel C. Valenza, USAID consultant, estimated that over the next ten years in the Northeast alone, newly constructed water supply systems would require 3500 new and trained workers. He believed further, that in order to obtain this objective, it would be necessary to train 4500 in order to compensate for 1000 who would not finish or who would take other jobs. As the Northeast contains only nine of Brazil's states and territories, it is not unreasonable to estimate the training requirements for all Brazil at about 12,000 for new supplies alone for the next decade. Add to this the very pressing need to train and to continue to train some 2500 persons who are operating existing water supplies. Mr. Hudson estimated that with current resources, it is possible to train about 370 per year at all training centers outside of the Northeast, where the current rate of producing trained people is about 200 per year. These facts attest to the need for acceleration of the over-all training effort and the adoption of a strong program for training people who will in turn pass on their knowledge to others.

It is deemed that priority should be given to the selection and education of employees from all the categories who will carry on the work of teaching others when they return. Among the categories the administrators and maintenance foremen should receive priority attention.

Brazilian Potential for Training

The team had as a major objective the assessment of Brazilian response to a training effort, as this factor will be decisive in the ultimate success of any expanded training program. It was evident from

interview with many key professional personnel, who were predominantly graduates of Brazilian universities, that this group assimilates and applies high level training very well. However, the great bulk of potential trainees are at the subprofessional level. There were many indications that the hunger for advanced learning among this group is real and that when once trained they are capable of sustained and acceptable performance. Impressive evidence of this was found in the north. Training which began there by FSESP some twenty years ago produced a group of operators who today maintain their supplies, so that their order and neatness are in great contrast to the surrounding environment. It was concluded that the proposed expanded program has an excellent chance for success from the standpoint of training potential.

Brazilian Training Resources

Resources available in Brazil have been somewhat described above. Physical facilities exist at Belem, Fortaleza, Recife, Belo Horizonte, Curitiba and Porto Alegre. While these are not great in size, they are suitable but could profit from additional equipment such as laboratory apparatus. At the Fortaleza well driller school there has been developed an excellent assortment of teaching equipment and visual aids. Training manuals used at the school are of a high caliber and are especially noteworthy for their good illustrations. It was apparent that the Brazilians have great native talent for producing visual aids. The instructors range from Brazilian University graduates and often U.S. trained professionals, to selected graduates from the training schools themselves. Those met by the team were judged very competent.

It was pointed out by Mr. Hudson that state and town officials, once they understand the objectives of water supply training, respond enthusiastically and give their full support. The team had an interesting illustration of this at Forteleza, where Dr. Virgilio Tavora, Governor of the State of Ceara, visited the FSESP well drillers school on the same day the team did. In an interview he expressed his deep concern for the need of water supply training and offered his full endorsement of the team's mission.

Need to Coordinate Training Efforts

It will be necessary to achieve some coordination or liaison between the various organizations such as named above, who are promoting water supply training in Brazil. At present all can work more or less independently for the needs are so great. However, as time passes, there should be some central assessment of all the efforts and a move made to coordinate them so that they continue to contribute to the larger objective of producing "graduates" who will build and sustain a good record of water works operation and maintenance.

Training Difficulties

A major block to sustained training has been the inflationary trend which has affected Brazil since the mid-1950s. This is illustrated by Figure 21. The danger from the inflationary spiral is that funds appropriated for a training effort, if not spent soon after they become available, soon become of much less value. As much time often elapses between planning and budgeting a training program and funding it, the amount of money at the time of funding may already be insufficient.

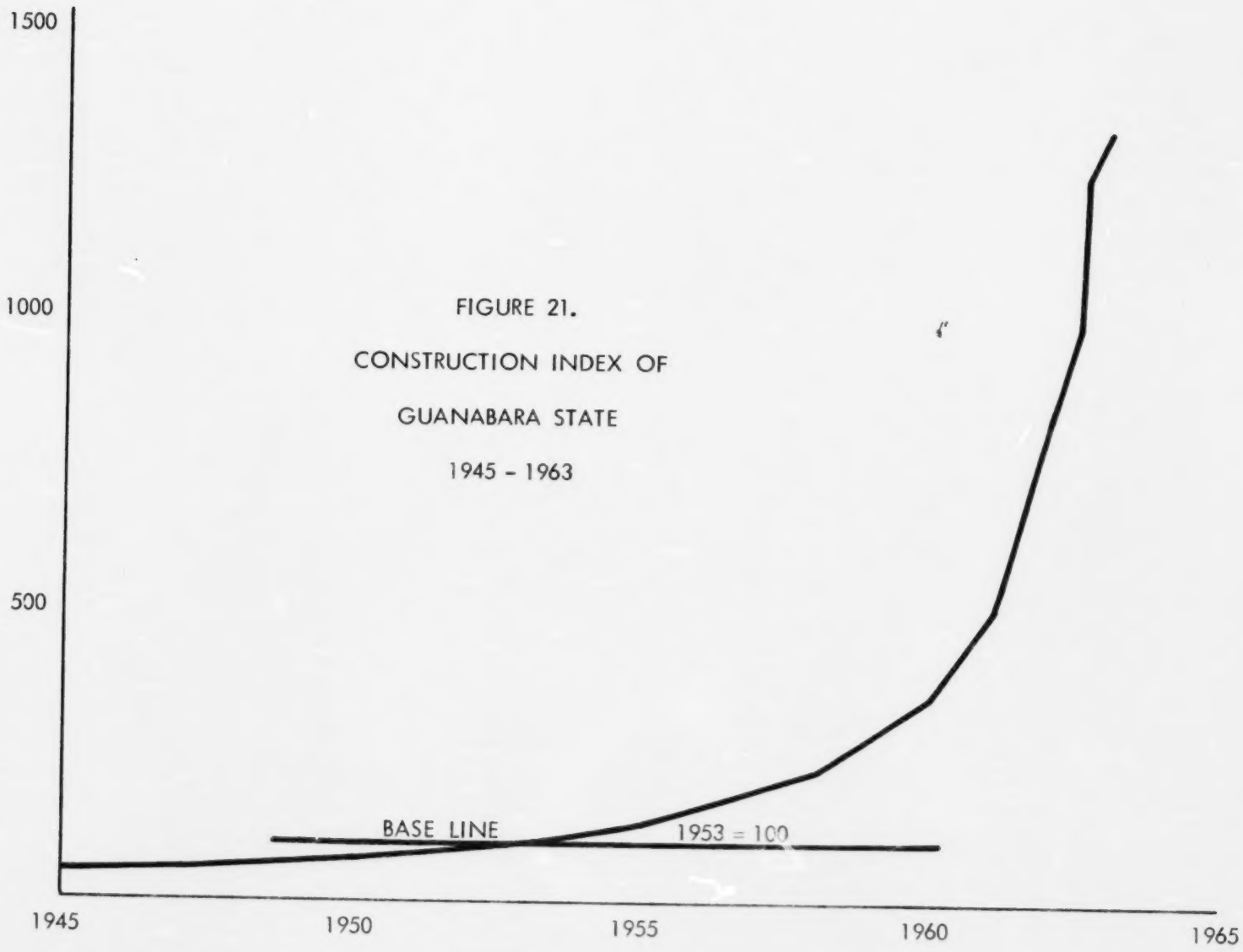

FIGURE 21.

CONSTRUCTION INDEX OF

GUANABARA STATE

1945 - 1963

There were some indications at the time of the team's visit that the rate of inflation was slowing. For example, the ratio of cruzeiros to the American dollar has remained constant for three months and this is the first such occurrence in several years. See Figure 18. On January 27, 1965, Minister of Finance, Otavio Gouveia de Bulhoes stated, that results of the Government's fight against inflation were becoming evident. The people, he said, had shown confidence in the Government and recently Cr $17 billion worth of public bonds had been sold, among them Treasury Debentures.

The team judged that the greatest difficulty to overcome in any training program is that of instilling proper attitudes. If the examples which were described above are any indication of the need for this, and all signs affirmed that they were, water supply personnel at all levels must be taught the concept of doing something about an undesirable condition and not permitting it to continue without correction. Again it is noted that spare parts are some of this problem, but the lack of determination and process to act is a far greater part.

Another complicating factor is the lack of availability of water revenues. The idea of consumers paying for water service is slowly developing in Brazil and it is important that it gain popular acceptance. The people have been accustomed to getting water as a gift, i.e., the Federal or State government built a water supply system and gave it some maintenance. Consequently, many water supply administrators were without a ready and steady source of revenue with which to maintain and augment their supplies. An example of a better situation was found in Rio where Dr. Miranda told the team the annual water revenue was now of the order of

$9,000,000 (U.S.). This has enabled SURSAN to make system improvements and to establish a program for training its personnel.

There are other difficulties, such as the lack of a civil service or merit system and low salaries. It will take time to build a civil service system and gradually upgrade salary levels. The training program should assist in accomplishing the latter.

Still another training difficulty or rather need is that of evaluating the effectiveness of training. The long travel distances and lack of ready communication make this difficult, but there must be developed a program for determining what the "graduates" of the training schools are doing with their education. Mr. Hudson has long recognized this problem and has plans for following up trainees from the Fortaleza well drillers school.

The USAID/PHS Participant Training Plan

Demands upon the one training engineer on the USAID/Brazil Water Supply Division staff have been so great he cannot possibly keep abreast of them. In order to meet the demands additional, full time water supply training advisors need to be furnished to assist the indigenous groups, FSESP and SURSAN. These organizations have urged that such personnel be provided and for several reasons it is appropriate to do so now. The political situation has stabilized and there are indications that the inflationary spiral is, at least, leveling off. Interest in training by these organizations is at a high level. It is also evident and acknowledged that something must be done to achieve proper operation and maintenance of public water supplies else the provision of these supplies will be ineffective. Training offers a solution to this problem.

USAID/B had after a conversation with FSESP and SURSAN officials seen the advisability of providing two full-time training advisors to assist FSESP at Recife and Rio de Janeiro or Belo Horizonte, and one to assist SURSAN in Rio. The FSESP men would be stationed one in Recife and one in either Rio de Janeiro or Belo Horizonte. Each would, however, be responsible for developing training courses and promoting training in several of the Brazilian States. The SURSAN advisor would direct his activity to Guanabara State and largely to the City of Rio de Janeiro. Whereas the FSESP training advisors would be concerned with both professional and subprofessional training, the SURSAN man would be engaged mainly in the latter. Specific position descriptions for each advisor were developed jointly by the team and Mr. Hudson in Rio toward the end of the visit. Appendix III contains a copy of each position description which describes both the duties of and qualifications needed for conducting the work.

The team did not devote much time to the subject of training course organization and content as an intensive study of this subject had been conducted in the Northeast by Noel C. Valenza, Sanitary Engineer Consultant to the USAID/B Water Supply Division. His report of December 17, 1963 to Mr. Edmund G. Wagner was reviewed and it is commended to those who will be concerned with this project in the future.

Support for the three training advisors would come from several sources. First, it is recommended that they be intersupporting - that is, that they look to each other for assistance and counsel. To this end it was recommended that they be organized as a team with one as senior member or leader. Although their day-to-day work will be separated geographically,

there will be opportunity for conferences between themselves and joint meetings with the USAID/B Water Supply Division personnel. Administratively, they will be responsible to that Division. Provisions were made for funds for consultants. These men will be specialists in such subjects as training aids, training methods and computers and would come to Brazil from the States for 30-day periods, at the request of the training advisors. Thirdly, technical guidance and back-up will be provided by the Public Health Service, Division of Environmental Engineering and Food Protection, Washington, who will have over-all technical responsibility for and supervision of the project. A representative of this Division will visit Brazil as required to discharge this responsibility. A fourth source of support is the U.S. Information Service, Rio de Janeiro, which offered to provide help in producing visual aid material.

Financing for the project will be as a reimbursement from USAID/B to the Public Health Service. An amount of $30,000. is available for FY 1965 and the budget requirements for FY 1966-1967 are $139,000. Details of project scope, budgets and personnel requirements are given in Appendix IV which contains: (1) a copy of PIO/T 512-062-2-50256 covering the SURSAN and FSESP Rio de Janeiro project; (2) a copy of PIO/T 512-062-2-50135 describing the FSESP Recife position and (3) PASA Budget Plans for FY 1965, 1966 and 1967.

Summary

At the request of the United States Agency for International Development, the Public Health Service sent a two-man team of engineers to Brazil to study public water supply training needs. From January 12, through January 29, the team visited training centers and interviewed

Brazilian and American water supply officials at Belem, Fortaleza, Recife, Rio de Janeiro, Sao Paulo and Curitiba and in Rio conferred with training officers of the water supply training center at Belo Horizonte. The team also made field inspections of public water supply installations at Abaetetuba, Goiania, Guandu River plant of Guanabara State, Rio de Janeiro and Curitiba.

Safe and adequate public water supplies are considered the Number One public health need of Brazil. In one area where the team visited, a health officer reported that over 90% of the population was infected with the organisms of amoebic dysentery. It is necessary for an individual or family to disinfect water taken from most of the existing city water supply systems.

It was found that Brazilian agencies have intense interest in water supply training and that the USAID/Brazil Water Supply Division has stimulated training programs and interest throughout the country. It was evident that there is great need to achieve proper operation and maintenance of public water supplies once they are constructed. Training personnel in proper operating procedures and above all in proper attitudes, offers the best solution to this problem as the Brazilians are capable of the necessary mechanical skills of equipment repair and replacement. There are also indigenous suppliers of basic water supply devices.

The team concluded that additional water supply training advisors should be sent to Brazil by the Public Health Service as quickly as possible. The report which precedes details the reasons for these conclusions and describes the observations of the team.

Recommendations

The survey team makes the following recommendations:

1. Three water supply training advisors should be provided by the Public Health Service and detailed to the Water Supply Division, United States Agency for International Development Mission to Brazil in accordance with their request.

2. The training advisors should act as a team with one officer being designated as the senior member and should have qualifications as described in the position descriptions attached to this report.

3. Provisions should be made for support of the training advisors by special consultants (training methods and other techniques) on a TDY basis as agreed upon by the survey team and USAID/B.

4. The project should be funded for at least three successive years.

5. Technical support for the advisors and periodic, in the field, review of their progress should be afforded by the Division of Environmental Engineering and Food Protection, Water Supply Section, Public Health Service, Washington.

6. The U.S. Agency for International Development should provide reimbursement to the Public Health Service to the extent outlined by USAID/B as delineated in the PIO/T's and budget requirements appended to this report.

7. Training aids and equipment should be supplied as needed by USAID/B and the Public Health Service.

8. A major objective of the training advisors should be to develop proper attitudes towards water supply maintenance so as to achieve effective preventive maintenance programs and the repair of equipment when

it breaks down.

9. The water supply training advisors should maintain close liaison with the USAID/B Water Supply Division and should be selected as capable of producing effectively in the professional and cultural environment of Brazil.

Acknowledgments

Acknowledgment is hereby gratefully made to the following for their valuable assistance in making the survey. Mr. Stuart Van Dyke, Director; Mr. William Ellis, Deputy Director; and Dr. Wayne Gibson, Chief Training Officer, USAID Mission to Brazil; Mr. E. Glenn Wagner, Chief, Water Supply Division, USAID/B; Mr. LeVerne D. Hudson who accompanied the team throughout the survey and who acted as interpreter and guide; Mr. Donald Cullivan; Mr. Charles Trygg of Recife, who furnished several of the illustrations; the many Brazilians who provided accurate and frank information and who cannot all be named here but among whom, in addition to those named in the report, were: Engineer Zadir Costello Branco, Mr. Edimundo Carada, Engineer Ataulpho dos Santos Coutinho, Dr.Osiris Stenghal Guimaraes, Engineer Guilherme Messias, Engineer Assuncao Neto, and Dr. Jacundino Puget.

APPENDIX I

FSESP Northeast Training Plan.

TRANSLATION

PLAN OF WORK FOR TRAINING PERSONNEL IN THE NORTHEAST

DRESNe - TRAINING AND RESEARCH SERVICE

1. GENERAL

FSESP has provided its headquarters in Recife, Pernambuco, for all its training and research activities in Northeast Brazil For this, FSESP has created the Training and Research Service (STP) of the Regional Administration of Sanitary Engineering of the Northeast (DRESNe).

By the signing of the Training Center - III Agreement, Project No. 512-11-520-062, dated March 2, 1964, FSESP assumed responsibility for the training of about 1,000 federal, state and municipal employees of public water supply systems.

For its execution, the program will have the technical collaboration of USAID/Brazil, as well as financial assistance from that Agency as well as from the National Department of Sanitation Wroks (DNOS).

With this collaboration and with its own technical and financial resources, FSESP expects to carry out this work in accordance with the Plan of Work described as follows:

2. PLAN OF WORK

2.1 Construction of STP Headquarters

FSESP has already made available CR$20,000,000 to start, in November, the construction of its headquarters building, the cost of which is estimated at CR$60,000,000. With supplementary funds from USAID we expect that the headquarters will be completed in March,1965 and occupied in April, 1965.

2.2 Equipment and Material

Within the first three months of activities we hope to aquire and receive the major part of the equipment and material necessary for the execution of the program, including the technical books that will be integrated in our Library. By the passing of the first year we should be completely equipped.

There will also be supplementary financing from USAID for the purchase of equipment and material.

2.3 Formation and Training of Personnel

It is expected that about 1,000 persons will be trained and improved within two years, through the use of III courses covering the area of the 9 Northeastern states under the jurisdiction of DRES/Ne.

The training activities of FSESP will be expanded. Until we have working conditions in Recife, our installations at Fortaleza will be maintained adequate for the Courses for Well Drillers and Geologists Assistant.

In the execution of our Training Program we have tried to avoid deplication. That is, we have not organized specialized courses that are already functioning satisfactorily under the auspices of other agencies adopt the same point of view.

It will be up to FSESP to select the personnel to be trained, their distribution by States and the fitness of the training as much as possible in conformance with the plans of the state and minicipal governments with respect to water and sewerage systems.

The works of STP will not be limited to the headquarters. There will be courses in other cities, in accordance with existing local facilities and the regional requirements for that type of trained personnel.

A large number of the proposed courses already have been planned, some of them with experience aquired through previous undertakings.

It is estimated that a total number of 1,665 students will be enrolled during the period of the program and that about 60 percent, or approximately 1,000 will graduate.

Each of the III courses will have 15 students at the most. Previous experience counsels against training of groups larger than this.

In order to meet its assumed responsibilities, DRESNe will prepare to the Superintendent of FSESP the approval of the annexed organisation chart for STP, during the year 1965. In case a more complex structure is indicated, further alterations will be submitted for official approval, during the course of the work of the Project.

José A. C. Santos

Translated by:
DECullivan/id
October 20,1964
WS&S/USAID/NE Brazil.

TRANSLATION

PUBLIC HEALTH SPECIAL SERVICE FOUNDATION

D.R.E.S.No. TRAINING AND RESEARCH SERVICE

BUDGET ESTIMATED OF THE TRAINING PROJECT

(CR$1,000.00)

ITEM 01 - PERSONNEL SERVICES			
Chief Engineer of Service	1 x 406 x 24 =	9.744	
Chief Engineer of Section	2 x 338 x 26 =	17.576	
Supervisory Engineer	2 x 328 x 26 =	17.056	
Engineer	2 x 288 x 26 =	14.976	
Geologist	1 x 288 x 26 =	7.488	
Chemist	1 x 288 x 26 =	7.488	
Instructors	10 x 150 x 26 =	39.000	
Assistants	8 x 90 x 26 =	18.720	
Government employees	12 x 80 x 26 =	24.960	157,008
ITEM 02 - TRAVEL EXPENSES			
Supervision trips	3 x 100 x 20 =	6.000	
Instructors trips	10 x 100 x 60 =	60.000	
Pupils trips	1.665 x 30 x =	49.950	
Daily expenses of pupils	1.665 x 10 x 4 =	66.600	182,550
ITEM 03 - FREIGHTS, ETC:			
	5 x 50 x 24 =	6.000	6,000
ITEM 04 - COMMUNICATIONS			
	30 x 24 =	720	720
ITEM 05 - RENT, LIGHT AND WATER			
	200 x 24 =	4.800	4,800
ITEM 06 - IMPRESSION AND BINDINGS			
	1.665 x 10 =	16.650	16,650

ITEM 07 - CONTRACTED SERVICES			
Construction of Head Quarter		= 60.000	
Contracted Professors-	4 x 200 x 111	= 88.800	
Translations and Sundries	20 x 111	= 2.220	151,020
ITEM 08 - MATERIALS AND TESTS			
	1.665 x 30	= 49.950	49,950
ITEM 09 - EQUIPMENT			100,000
ITEM 10 - SUNDRIES			31,302
		TOTAL	700,000

Translated by:
GFBSilla/vfc
October 22, 1964
WS&S/USAID/NE-Brazil

TRANSLATION

PUBLIC HEALTH SPECIAL SERVICE FOUNDATION

(Cr$ 1,000)

	ITEMS	EXPENSES 1st QUARTER	1st YEAR	COMPLETED PROJECT
01	Personnel Services	19.500	78.000	157.008
02	Travel Expenses	20.000	85.000	182.550
03	Freights and Travels	5.000	6.000	6.000
04	Communications	60	360	720
05	Rent, light and water	600	2.400	4.800
06	Impression, etc.	1.000	7.000	16.650
07	Contracting Services	60.000	100.000	151.020
08	Materials	5.000	24.000	49.950
09	Equipment	80.000	90.000	100.000
10	Sundries	8.840	17.240	31.302
	T O T A L	200,000	410,000	700,000

Translated by:

GBSills/vfc

October 23, 1964

WS&S/USAID/NE-Brazil

TRANSLATION

PUBLIC HEALTH SPECIAL SERVICE FOUNDATION

DRESNe. - TRAINING AND RESEARCH SERVICE

Number of cities to be served

Maranhão	15
Piauí	13
Ceara	53
Rio Grande do Norte	9
Paraíba	38
Pernambuco	49
Alagoas	45
Sergipe	25
Bahia	110
TOTAL	357

COURSES					PUPILS					
		NUMBER			ENROLLMENTS			GRADUATIONS		
TITLE	Duration per week	First Quarter	First Year	Total Project	First Quarter	First Year	Total Project	First Quarter	First Year	Total Project
Secretary - Cashier	6		4	10		60	150		36	90
Administrator	9	1	4	10	15	60	150	9	36	90
Driller	26		2	4		30	60		18	36
Assist. Driller	16		2	4		30	60		18	36
Assist. Geologist	16		2	2		30	30		18	18
ETA - Operator	26		2	4		30	60		18	36
EE - Operator	8		5	12		75	180		45	108
Mecanic (Diesel Motors)	17		2	4		30	60		18	36
Mecanic (Gasoline)	17		2	4		30	60		18	36
Mecanic (Electric)	17		2	4		30	60		18	36
Hydraulic Plumber	13		3	8		45	120		27	72
Pump Repairer	17		2	6		30	90		18	54
Water Meter Repairer	4		4	10		60	150		36	90
Stone Mason	6		4	10		60	150		36	90
Carpenter	4		4	10		60	150		36	90
Foreman	26		2	4		30	60		18	36
Sanitary Educationer	13		2	5		30	75		18	46
TOTALS		1	48	111	15	720	1665	9	432	1000

GFB/Silla/vfc - Oct. 23, 1964 - WS&S/USAID/NE-Brazil

TRANSLATION

DRSSNe. - TRAINING AND RESEARCH SERVICES
PLAN OF WORK FOR THE FIRST YEAR OF ACTIVITIES

1. CONSTRUCTION OF HEADQUARTERS

The construction of headquarters will be finished probably within the first six months of work. Therefore, we should occupy the new installation definitely in April, 1965.

2. EQUIPMENT AND MATERIALS

The purchase and receipt of all the materials and equipment on the lists furnished by USAID/BRAZIL, both of national and foreign manufacture, should be completed during the first years activities.

Equipment and materials not specified in the above mentioned list will be furnished by F-SESP during the carrying out of the Program.

3. TRAINING AND RESEARCH

a) Training of Personnel

Training trips and regular courses will be organized, the first for personnel of higher level and the others for professionals of medium level.

Among the training trips, we intend to visit the following:

1. Maintenance and operation of public water and sanitary sewage systems.
2. Administration of S.A.A.E. organizations
3. Drilling of wells (use of equipment)
4. Water Treatment

For this first year the courses related to the Estimated Budget, 48 courses being planned, expect to have 720 registrations and 432 graduations.

In the first year the Training Program is expected spend about Cr$..... 410,000,000.

6. RESEARCH

The research section will be in charge of Sanitary Engineering and Hydrology research.

Amongts the studies programmed the following are mentioned:

1. Tests of various materials (Plastic pipe, etc.)
2. Influence of meters on the consumption of water
3. Establishment of satisfactory rates for water and sewage
4. Interpretation of rainfall data.

c) DISSEMINATION OF INFORMATION

We intend to disseminate information referring to matters on water supply, by publication and distribution of articles, booklets, maps and other specialized works, so as to enable the technician of the region to keep up to date with regard to the progress being made in his field of activity.

Translated by:
GFBSilla/vfc
October 23, 1964
WS&S/USAID/NE-Brazil

TRANSLATION

PUBLIC HEALTH SPECIAL SERVICE FOUNDATION

Work for the First Quarter

The last quarter of the present year will mark the beginning of the activities of the Training and Research Service of the Regional Directory of Sanitary Engineering in the Northeast, which was created to substitute the Training and Hydrogeological Research Sector.

(1) Construction of Office

So as to resolve the problem of headquarters for the Service of Training and Research, we already have Cr$20,000,000.00 (Twenty million cruzeiros) to initiate the construction of the building. We await the technical specifications which are being prepared by our Head Office in Rio de Janeiro, G.B., so as to be able to contract the work with a construction firm. The approval of plans by the Municipality of Recife is being taken care of.

To finish head-quarters, we have Cr$30,000,000.00 (Thirty million cruzeiros) to be furnished by USAID/BRAZIL in accordance with the terms of the Training Center III Agreement of project Nº 512-11-520-062, dated March 2, 1964.

We enclose herewith a copy of the copy of our headquarters.

(2) Equipment and Materials

With reference to equipment and materials to be purchased immediately, the list attached was prepared, based on a list furnished by USAID/BRAZIL (April 1964). For this purchase USAID/BRAZIL will furnish Cr$8,000,000.00 (Eight million cruzeiros).

We await the receipt of equipment in the total value of US$28.700.00 (Twenty eight thousand seven hundred dollars) as a grant from USAID/BRAZIL.

A list of technical books to be bought immediately, was also prepared, which we annex to this work plan. As a necessary supplement we hope to receive from USAID/BRAZIL Cr$1,500,000.00 (One million five hundred thousand cruzeiros).

The Service of Training and Research is being installed provisionally at Av. Visconde de Suassuna 607. We are therefore taking steps to buy office equipment, school desks, materials for teaching, etc.

(3) Training

On November 3 next in Fortaleza, Ceará, the VIII Drillers Course will be initiated. For this course, candidates from other Federal and State Organizations specially the DNOCS will be received.

The program of the VIII Drillers Course is as follows:-

(1) Beginning - Nov. 3, 1964
(2) Duration - 6 months
(3) Number of Pupils - 15
(4) Instructors - 5
(5) Responsible for the Course: Supervising Engineer Manoel Henrique Barbosa de Albuquerque.

The difficulties in carrying out the VIII Drillers Course, principally owing to lack of personnel, were overcome with the collaboration of the Chief of the Ceará Sector of D.P.E.S.Ne.

For the month of November next, a rapid Course in Administration of S.A.A.E. with a duration of two weeks, for 15 specialists, is programmed.

With our work group, this is the maximum we can do. However, so as to permit the carrying out of a program of proportions forseen in the Agreement, we are submitting to the Superintendency of F-SESP a chart attached for the Service of Training and Research. The approval of this chart will imply, on the part of F-SESP, the obligation to employ, exclusively in Training and Research, during 1965, an amount not to exceed Cr$110,000,000.00 (One hundred and ten thousand cruzeiros).

The following table recepitulates the application projected for Cr$ 39,500,000.00 whose liberation we now request.

Application	Quantity in Cr$1.000.00
(1) Construction of Head Quarters (Finishing)	30,000
(2) Equipment and Materials (See list attached)	8,000
(3) Technical Books (See list)	1.500
	39,500

PUBLIC HEALTH SPECIAL SERVICE FOUNDATION

D.E.E.S.No. TRAINING AND RESEARCH SERVICE

LIST OF MATERIAL AND EQUIPMENT TO BE PURCHASED IMMEDIATELY

ITEM	ITEM ORIG.	DESCRIPTION		QUANTITY			PRICE IN CR$1.000,00 UNIT	TOTAL	
				TOTAL	1st PAYM.	2nd PAYM.		1st PAYM.	2nd PAYM.
1	1	High Pressure Welding Machine (MECAN) model B) 1,5 Kg/cm^2 3500 l/h, 6 Kg. carb., manometer 58/80, pressure gauges, hoses, burners for welding and cutting, blow pipes, sun-glasses, aprons, gloves, etc.	U	1	-	1	250	-	250
2	4	Adjustible steel betmets for drillers	U	24	24	-	5	120	-
3	5	Chain pipe clamp for 3"	U	8	8	-	70	560	-
4	6	Chain pipe clamp for 10"	U	4	1	3	85	85	255
5	7	Chain Tightener for 10" pipe	U	2	1	1	70	70	70
6	8	Patent geared hoist for 2 tons	U	2	2	-	200	400	-
7	9	Spindle hoist for 500 Kg.	U	1	1	-	70	70	-
8	10	Dies for threading 1/2" to 2" pipe	U	1	1	-	200	200	-
9	11	Die for threading pipe 2.1/2" to 4"	U	1	1	-	275	275	-
10	12	Die for threading pipe 4.1/2" to 8"	U	1	1	-	500	500	-
11	13	MWM Diesel Engine model K-D-12D	U	2	-	2	3.000	-	6.000
12	15	Velocity Water Meter 1/2"	U	25	-	25	11	-	275
13	16	Drilling machines for Cast Iron Pipes for house connections	U	2	-	2	200	-	400
14	17	Trino wrench for 12" pipe	U	10	10	2	12	120	-
15	18	Trino wrench for 2 1/2" pipe	U	10	5	5	17	85	85

16	19	Chain Tightener for 2" pipe	U	10	9	1	35	315	35
17	20	Electric welding machine with 220/380V 3HP, 60 cps, 400A complete automatic switch board, wires, electrodes, masks, aprons, sleeves, gloves, etc. General Electric	U	1	-	1	750	-	750
18	23	Three-phases Electric Generator 220/117V,60 cps, 5 KVA driven to to Fairbanks Morse Diesel Engine	U	1	-	1	1.800	-	1.800
19	24	Chevrolet micro-omnibus for 25 passangers	U	1	-	1	12.000	-	12.000
20	25	Willys-Jeep Utility Pick up 4x2	U	1	-	1	5.200	5.200	-

Translated by:
GFBSills/vfc
October 23, 1964
WS&S/USAID/NE-Brazil

APPENDIX II

Typical USAID/B Training Agreement.

AID 10-5
(6-62)

PRO AG

PROJECT AGREEMENT

BETWEEN THE AGENCY FOR INTERNATIONAL DEVELOPMENT (AID)
AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND
COORDINATING COMMISSION FOR THE ALLIANCE FOR PROGRESS AND THE FOUNDATION OF SPECIAL PUBLIC HEALTH SERVICES
AN AGENCY OF THE GOVERNMENT OF UNITED STATES OF BRAZIL

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in the Standard Provisions annex and in any additional annexes attached hereto.

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented.

☐ GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATED December 19, 1950

☐ ECONOMIC COOPERATION AGREEMENT DATED

☒ OTHER DATED Special Technical Services Agreement of May 30, 1953

1. PROJECT NO. 512-11-520-062

2. AGREEMENT NO. Reg. Trng.- South Brasil

3. ORIGINAL ☐ REVISION NO. 4

4. PROJECT TITLE

National Water Supply and Sewage

5. PROJECT DESCRIPTION AND EXPLANATION

(See Annex A attached)

6. AID APPROPRIATION SYMBOL 72 FT580

7. AID ALLOTMENT SYMBOL 735-50-512-24-69-00

8. AID DOLLAR FINANCING	PREVIOUS TOTAL (A)	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
(a) Total	Cr$360,000,000	Cr$50,000,000		Cr$410,000,000
(b) Contract Services				
(c) Commodities				
(d) Other Costs	Cr$360,000,000	Cr$50,000,000		Cr$410,000,000
9. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT OF [illegible]				
(a) Total				
(b) Technical and Other Services				
(c) Commodities				
(d) Other Costs				

10. SPECIAL PROVISIONS

DATE OF ORIGINAL AGREEMENT	DATE OF THIS REVISION	FINAL CONTRIBUTION DATE

FOR THE COOPERATING AGENCY	FOR THE DIRECTOR, AID

Reproduced from best available copy.

AID 10-5A (7-55) PRO AG ANNEX	PROJECT AGREEMENT BETWEEN AID AND COCAP AND FSESP AN AGENCY OF THE GOVERNMENT OF UNITED STATES OF BRAZIL	1. PROJECT NO. 512-11-520-062	3. ORIGINAL ☒
		2. AGREEMENT NO. Reg. Trng.-South Brazil	REVISION NO.
		ANNEX A	SHEET 1 OF SHEET 7

São partes do presente convênio a Comissão Coordenadora da Aliança para o Progresso (COCAP), a Fundação Especial de Serviços de Saúde Pública (FSESP) orgão brasileiro criado em 11 de abril de 1960 pela Lei no. 3.750, e a Agência Norte-Americana de Desenvolvimento Internacional (USAID/Brazil).

The parties to this agreement are the Brazilian Coordinating Commission for the Alliance for Progress (COCAP), the Foundation of Special Public Health Services (FSESP) a Brazilian agency established April 11, 1960 by Law No. 3,750, and the United States Agency for International Development (USAID/Brazil).

O convênio cooperativo destinado a um projeto nacional de abastecimento de água e esgotos (firmado aos 30 de maio de 1962 pelo Ministério da Saúde, FSESP, o Representante do Govêrno Brasileiro junto ao Ponto IV e o Diretor da USAID/Brasil), fixa as bases para um programa cooperativo de abastecimento de água e rêde de esgôtos, em âmbito nacional, visando a consolidar e desenvolver instituições técnicas e financeiras, dotar de pessoal treinado os serviços de abastecimento de água nos planos municipal, estadual e federal, e desenvolver uma metodologia capaz de mobilizar os elementos necessários a um abastecimento adequado e seguro de água potavel e a instalação de esgotos sanitários para atendimento das comunidades em processo de crescimento e as indústrias em expansão do Brasil.

The cooperative agreement for a national water supply and sewage program (signed on May 30, 1962 by the Minister of Health, FSESP, the Brazilian Government Representative for Point IV and the Director of USAID/Brazil) establishes a basis for nation-wide cooperative water supply and sewage activities which will strengthen and develop technical and financial institutions, provide trained personnel to staff the local, state and federal water supply agencies, and develop methodology for bringing into operation the forces required to provide an adequate and reliable supply of potable water and facilities for waste disposal to the growing communities and expanding industries of Brazil.

Em conformidade com os têrmos do presente convênio, êsse projeto de caráter cooperativo deverá ser executado com vistas ao aceleramento de um programa de auto-ajuda no Brasil, consoante os objetivos da

In conformance with this agreement, this cooperative project is to be undertaken to accelerate the Brazilian water supply and sewerage program in accordance with the Alliance for Progress objective

FOR THE COOPERATING AGENCY	FOR THE DIRECTOR, AID

Aliança para o Progresso, no sentido de fornecer água potável e para instalação de esgotos sanitários para atendimento de pelo menos 70% da população urbana do hemisfério até fins de 1970.

of providing potable water supplies and adequate waste disposal facilities for at least 70% of the urban population of the Hemisphere by the end of 1970.

I - SITUAÇÃO ATUAL

O FSESP dispõe de uma organização e materiais para o treinamento do pessoal encarregado do abastecimento de água e tem se ocupado ativamente da administração e operação de mais de 80 serviços de abastecimento de água no Brasil. O FSESP tem trabalhado de perto com Departamentos de água e Esgotos dos Estados do Paraná e Santa Catarina e pode fornecer a organização e coordenação necessárias para estimular um programa regional de treinamento. Esse treinamento e essencial à administração adequada e às normas de auto-manutenção e operação, adotadas pelos respectivos estados, na execução de seus contratos com os municipios.

I - CURRENT SITUATION

The FSESP has developed an organization and materials for waterworks personnel training and it has been actively engaged in managing and operating over 80 water systems in Brazil. FSESP has worked closely with the Water and Sewer Departments of the States of Paraná and Santa Catarina, and it can provide the organization and coordination to stimulate a regional training program. This training is essential to the proper management and to the self-supporting maintenance and operation concepts employed in the respective states in carrying out the management contracts with the municipalities.

O treinamento adequado do pessoal responsável pelo abastecimento de água é necessário para fortalecer programas estaduais planejados, visando à melhoria do abastecimento de água.

Adequate training of waterworks personnel is required to support planned state programs for community water supply development.

Alta prioridade é atribuida a êsse programa pela Seção de Águas e Esgotos da Divisão de Engenharia do FSESP. A USAID/Brazil vem assistin

High priority is given to this program by the Water Supply and Waste Disposal Management Division of FSESP. The USAID/Brazil has

do o FSESP na elaboração de programas regionais de treinamento, em conformidade com os têrmos do convênio geral de Abastecimento de Água e Rede de Esgotos. O FSESP designará um representante técnico que ficará responsável pela organização e operação do Centro Regional de Treinamento a ser criado no Paraná, e coordenará êste programa regional, obtendo e fornecendo os serviços de técnicos especializados, os quais funcionarão como instrutores.

been assisting the FSESP in preparing for regional training programs under the provisions of the overall Water Supply and Sewage Project Agreement. The FSESP will assign a technical representative to carry out its responsibilities for the establishment and operation of the Regional Training Center to be established in Paraná and it will coordinate this regional program, obtaining and furnishing as needed a trained staff of technicians who will serve as instructors.

II - FINALIDADE

A finalidade do presente convênio é acelerar e intensificar ainda mais o treinamento e aperfeiçoamento, nos próximos dois anos, de 250 funcionários encarregados dos serviços de água, que ficarão encarregados da administração, manutenção e funcionamento dêsses serviços nos estados do sul do Brasil. Cursos sôbre operação financeira, medição de água, localização e reparo de vasamentos, reparo e manutenção do equipamento, e química e bacteriologia da água serão ministrados.

II - PURPOSE

The purpose of this agreement is to further accelerate and intensify the training and development in the next two years of 250 water-works employees who will be in charge of the management, maintenance, and operation of these water utilities in the southern Brazilian states. Courses in such subjects as financial operation, water metering, locating and repairing leaks, repair and maintenance of equipment, and chemistry and bacteriology of water will be given.

III - RESPONSABILIDADES

A. A COCAP concorda, pelo presente instrumento, em aplicar Cr$50.000.000,00 oriundos de verbas de doação, provenientes da venda de

III - RESPONSIBILITIES

A. COCAP hereby agrees to the use of Cr$50,000,000 of grant funds accruing from the sale in Brazil of agricultural

produtos agrícolas no Brasil, fornecidos em conformidade com o Quarto Acôrdo sôbre Vendas, Título I da Lei Norte-Americana 480, posteriormente alterada (Fundo do Trigo) para programas a serem executados pelo FSESP com assistência da USAID/Brasil, durante os próximos dois anos com vistas às finalidades descritas no item II acima.

commodities made available under IVth Sales Agreement, Title I of the 1954 United States Public Law 480, as amended, (the Wheat Fund) for programs to be conducted by FSESP with USAID/Brazil assistance during the next two years to carry out the purposes described in II above.

B. A FSESP concorda em:

1) Fornecer os instrutores necessários, coordenar a participação conjunta dos estados, e fornecer instalações adequadas para os instrutores e o pessoal auxiliar.

B. FSESP agrees to:

1) Provide the necessary instructors, arrange for joint participation with the States, and provide adequate space for instruction and auxiliary personnel.

2) Propiciar parte do material didático essencial e material de expediente, inclusive de demonstração, para executar o treinamento.

2) Furnish some essential scholastic and office supplies, including demonstrational materials for carrying out the training.

3) Apresentar um orçamento e um programa de trabalho dentro de 15 dias úteis, após a assinatura dêste convênio relativos às despesas previstas para o projeto (a) para a totalidade do projeto; (b) para o ano civil de 1964 e (c) para os três primeiros meses de operação. Pedidos ulteriores de verbas serão feitos de acôrdo com o parágrafo III-C-2.

3) Submit a work plan and budget within 15 work days after the signing of this agreement for the anticipated project expenditures (a) for the entire project, (b) for the calendar year of 1964, and (c) for the first three months of operation. Subsequent requests for funds will be made in accordance with paragraph III-C-2.

4) Assegurar a utilização adequada das verbas fornecidas pela USAID/Brazil, segundo os têrmos dêste convênio, para pagamento das despesas dos bolsistas e do pessoal do centro de treinamento. Essas verbas serão depositadas numa Conta Especial, a ser aberta pelo FSESP, no Banco do Brasil.

4) Insure the proper use of the funds made available by USAID/Brazil, under the terms of this agreement for payment of the expenses of the participants and training center staff. These funds will be deposited in a Special Account which FSESP will open in the Bank of Brazil.

C. A USAID/Brazil designa, pelo presente, sua Divisão de Águas para colaborar com o FSESP na realização dêste programa e acorda em:

C. USAID/Brazil hereby designates its Water Supply Division to work with the FSESP in carrying out this cooperative project and agrees:

1) Fornecer até Cr$..... 50.000.000,00 a serem aplicados para cobrir as despesas de viagem e outras, dos bolsistas e do quadro de instrutores e de livros técnicos e material de treinamento necessários à operação dessa unidade regional, em conformidade com o orçamento e o plano de trabalho, a serem submetidos e aprovados pela USAID / Brazil para êste projeto.

1) To make available not to exceed Cr$50,000,000 to be used for travel and other costs of the participants and the training staff and for technical training materials and books required for the functioning of this regional unit, in accordance with the budget and work plan to be submitted to and approved by USAID/Brazil for this project.

Os juros correspondentes às verbas recolhidas pela USAID/Brazil à Conta Especial podem ser, a critério da USAID/Brazil, considerados como parte das verbas que essa agência se dispôs a fornecer.

Interest earned on funds transferred by USAID/Brazil to the Special Account may be, at the discretion of USAID/Brazil, considered as part of the funds which it has agreed to make available.

2) Adiantar para depósito na Conta Especial, verbas suficientes para os três primeiros meses de operação dêste Centro, dentro de 30 dias úteis após o recebimento e a aprovação do plano de trabalho para o projeto, e do orçamento. Os adiantamentos subsequentes dentro da verba de Cr$50.000.000,00 serão efetuados mediante solicitação da FSESP, após o exame e aprovação pela USAID/Brazil dos relatórios, normalmente submetidos cada trimestre, da FSESP, que conterão informações relativas a (a) aplicação das verbas adiantadas anteriormente; (b) o andamento do projeto; (c) quaisquer alterações dos custos previstos; (d) projetada aplicação das verbas destinadas aos períodos seguintes, e (e) informações correlatas.

2) To advance for deposit in the Special Account sufficient funds for the first three months of operations of this Center within 30 working days after receipt and approval of a project work plan and budget. Subsequent advances within the total of Cr$50,000,000 will be made upon request by FSESP after review and approval by USAID/Brazil of reports normally submitted on a quarterly basis, from FSESP including information regarding (a) the use of funds previously advanced; (b) the extent of progress in completion of the project; (c) any changes in estimated costs; (d) projected use of funds for the succeeding period, and (e) related information.

3) Dependendo da disponibilidade de verbas e de pessoal, fornecer técnicos da USAID/Brazil e assessores especializados para assistência consultiva permanente ou de pequena duração, ao programa, conforme solicitação. As despesas dêsses técnicos e consultores americanos serão custeadas pela USAID/Brasil.

3) Subject to the availability of funds and personnel, provide the services of USAID/Brazil technicians and special consultants for continuing or short-term advisory assistance to the training program upon request. Costs of these United States technicians and consultants will be borne by the USAID/Brazil.

IV - DISPOSIÇÕES GERAIS

A. As Disposições Gerais sôbre Moeda Estrangeira, que figuram como Anexo B, alteradas pelo Memorandu de Entendimento sôbre Auditoria, firmado entre o Ministério do

IV - GENERAL

A. The Foreign Currency Standard Provisions attached hereto as Annex B, as modified by the Memorandum of Understanding on Audit between the Ministry of

APPENDIX III

Position Descriptions for Water Supply Training Advisors

POSITION DESCRIPTION

TRAINING ADVISOR - WATER SUPPLY AND SEWAGE PROGRAM

FUNDAGAO SERVICO ESPECIAL DA SAUDE PUBLICA

RIO DE JANEIRO, BRAZIL

GENERAL

The Training Advisor shall, with the concurrence of the Director, FSESP program and with the guidance of the Sanitary Engineering Advisor (Training) in the USAID Water Supply Division, assist FSESP and other proper Brazilian agencies in the development and conduct of permanent water supply training programs for professional and subprofessional personnel in the following states, Rio Grande de Sul, Santa Catarina, Parana, Sao Paulo, Rio de Janeiro, Espirita Santo, Minas Gerais, Goias, Para, Amazonas, Amapa (territory), Acre. He shall consult in technical matters with FSESP Chief Sanitary Engineer. He shall also in the conduct of his duties maintain liaison with the other two Training Advisors and receive from them and render to them such assistance as may be necessary. He shall maintain liaison with PAHO, WHO, IDB and other agencies which may promote or conduct W.S. training.

SPECIFIC DUTIES

1. The Training Advisor shall assist the FSESP Training personnel in the planning, conduct and evaluation of training courses provided for well drillers, administrators, foremen and other water supply categories. He shall keep Brazilian training officials appraised of the latest developments both in technical water supply methods and teaching procedures. He shall assist in the establishment and expansion of permanent training centers where may be taught technics of water supply and sewerage administration, operation and maintenance.

2. The Training Advisor shall assist universities in developing courses at which professional water supply and sewerage personnel may receive instruction. He shall encourage field training projects by university staffs. He shall assist universities in the development and advise on the use of laboratory facilities, research and training in water supply production and distribution.

3. He shall encourage the development and assist in the conduct of short courses by FSESP and other agencies for engineers in specific sanitary engineering subjects such as water supply design and planning, administration, and laboratory control of water quality and of health hazards. He shall arrange for attendance at and assist in the selection of candidates to attend specialized engineering or short courses in the United States especially those at Akron for operation and maintenance, Minnesota for ground water development and at the RATSEC and Neosho, and at North Carolina for design. In so doing he shall utilize the services offered under contract to A.I.D.

4. The Training Advisor shall periodically evaluate the effectiveness of the training courses received by Brazilians both in Brazil and in the United States. He shall also monitor or follow up those students who are taking correspondence courses in water supply from the Pennsylvania State University or other extension outlets (schools). He shall report on these matters to the Sanitary Engineer Advisor, USAID Water Supply Division.

5. The Training Officer shall maintain close contact and relationship with the water supply programs in the states and shall relate the

training programs to the realities of field conditions in water supply development, operation and maintenance.

6. He shall assist FSESP and other proper agencies to develop water supply and sewerage research and investigations related to the training programs. He shall encourage operating agencies and Universities to collect and evaluate data necessary for establishment of realistic standards of water supply quality and practice.

7. When called upon to do so the Training Officer shall assist FSESP and other proper agencies in planning and administering water supply programs especially regarding design, operation and maintenance.

8. The Training Advisor shall build into the training courses for all categories the concept of developing attitudes conducive to proper maintenance of water supply and sewer systems. For example, he should teach that a well appearing and well kept plant is indicative of a well operated plant. He shall endeavor to promote the practice of taking care of problem situations when they arise and not allow them to deteriorate.

PERFORMANCE REQUIREMENT

1. TRAINING: The Training Advisor shall be a graduate of a recognized school of engineering, and shall have satisfactory graduate training. It is desirable that he possess a license as a registered professional engineer. He shall have or shall acquire a working knowledge of the Portuguese language. It is desirable that the Training Advisor have completed short courses related to the production and distribution of potable water.

2. EXPERIENCE: - He shall have had at least 10 years experience in water supply development and some experience related to water supply training. He shall possess a good working knowledge and understanding of the management, operation, design and maintenance of water supply systems. It is desirable that he possess a license as a water treatment plant operator.

3. RELATIONS TO THE PUBLIC: He shall show evidence of the ability to conduct cordial relations with the public and shall have demonstrated leadership ability and professional accomplishment. He shall demonstrate the ability to work in the cultural environment of Brazil.

4. TRAVEL: The Training Advisor must be accustomed to air travel and should be prepared to spend such time in such traveling as may be required to properly prosecute the work.

5. CONTACTS: The Training Advisor shall develop and maintain effective contacts with the Directors and other key personnel of cooperating agencies; Directors and professors of Schools of Engineering (sanitary); and with Federal, State and municipal authorities as may be required.

POSITION DESCRIPTION

TRAINING ADVISOR

TO THE SUPERINTENDENCIA DE URBANIZACAO E SANEAMENTO - (SURSAN)
RIO de JANEIRO, BRAZIL

GENERAL:

The Training Advisor to SURSAN shall, with the concurrence of SURSAN, and with the guidance of the Sanitary Engineering Advisor (Training) in the USAID Water Supply Division, assist SURSAN in the development and conduct of water supply and sewer department personnel training programs. He shall consult in technical matters with the Directors and work closely with their Operating and Maintenance Division.

The Training Advisor (SURSAN) shall maintain liaison with the Director, Instituto de Engenharia Sanitaria (IES).

The Training Advisor (SURSAN) shall serve as the senior member of the three man training team, shall coordinate and review the work of the team and shall render to and receive from the other two members such assistance as may be necessary.

He shall maintain liaison with PAHO, WHO, IDB and other agencies which may promote or conduct water supply training in Guanabara.

SPECIFIC DUTIES:

1. The Training Advisor shall assist SURSAN in the planning, development, conduct and evaluation of training courses as needed for subprofessional personnel to improve operation and maintenance of the water and sewerage systems, particularly in categories such as plant operator, mechanic, laboratory chemist, laboratory bacteriologist, meter reader, plumbing inspector, water system foreman and sewer system foreman. He shall keep SURSAN appraised

of the latest development both in technical water supply methods and teaching procedures.

2. The Training Advisor shall appraise himself of the problems which exist in the operation and maintenance of the Guanabara water supply and sewer system. He shall particularly determine the causes of water losses in the system and shall build into the training course instruction in methods of avoiding and correcting such losses. For example: particular attention should be paid to such subjects as pipe tapping, interconnections and proper pipe laying methods.

3. The Training Advisor shall build into the training courses for all categories the concept of developing attitudes conclusive to proper maintenance of water supply and sewer systems. For example, he should teach that a well appearing and well kept plant is indicative of a well operated plant. He shall endeavor to promote the practice of taking care of problem situations when they arise and not allow them to deteriorate.

4. He shall encourage the development and assist in the conduct of short courses by SURSAN for professional personnel working in water works and sewerage activities. These courses might be in such subjects as administration, laboratory control of water quality and the control of health hazards. He shall determine the need for and aid in the selection of professional personnel to attend specialized courses in the States at such training centers as the Sanitary Engineering Center, North Carolina University, Minnesota University, Akron and the Water and Sewerage Technical School, Nacsho.

5. The Training Advisor shall periodically evaluate the effectiveness of the training programs.

6. When called upon to do so the Training Advisor shall assist SURSAN in planning and administering the water supply and sewerage programs of Guanabara State especially regarding design, operation and maintenance.

7. He shall assist SURSAN in developing water supply and sewerage research and investigations. He shall encourage the collection and evaluation of data necessary for establishing realistic standards of water supply quality and practice. He shall consider the usefulness of computers and shall promote such use if feasible. In the conduct of these and other duties he shall determine the need for and arrange for the use of the services of consultants.

PERFORMANCE REQUIREMENT

1. TRAINING: - The Training Advisor shall be a graduate of a recognized school of engineering and shall have satisfactory graduate training. It is desirable that he be a registered professional engineer. He shall have or shall acquire a working knowledge of the Portuguese language. It is desirable that he have completed short courses related to the production and distribution of potable water.

2. EXPERIENCE: - He shall have had at least 10 years experience in the field of water supply and its development and some experience related to water supply training. He shall possess a good working knowledge and understanding of the management, operation, and maintenance of water supply and sewerage systems including satisfactory experience with large city water supply distribution systems. It is desirable that he possess a water plant operators license.

3. RELATIONS TO THE PUBLIC:- He shall show evidence of being able to conduct cordial relations with the public and shall have demonstrated leadership ability and professional accomplishment. He shall demonstrate the ability to work in the cultural environment of Brazil.

POSITION DESCRIPTION

TRAINING ADVISOR - WATER SUPPLY

AND SEWAGE PROGRAM OF THE NORTHEAST

FUNDACAO SERVICO ESPECIAL DA SAUDE PUBLICA

RECIFE, BRAZIL

GENERAL

The Training Advisor shall, with the concurrence of the Director, NE program and with the guidance of the Sanitary Engineering Advisor (Training) in the USAID Water Supply Division, assist FSESP and other proper Brazilian agencies in the development and conduct of permanent water supply training programs for professional and subprofessional personnel in the NE. The NE includes the States of Maronhao, Paraiba, Pernambuco, Ceara, Bahia, Alagoas, Rio Grande do Norte, Piaui and Sergipe. He shall consult in technical matters with the PSESP Chief Sanitary Engineer NE. He shall also in the conduct of his duties maintain liaison with the other two Training Advisors and receive from them and render to them such assistance as may be necessary. He shall maintain liaison with PAHO, WHO, SUDENE, IDB and other agencies which may promote or conduct W.S. training in the NE.

SPECIFIC DUTIES

1. The Training Advisor shall assist thr FSESP Training personnel in the NE in the planning, conduct and evaluation of training courses provided for well drillers, administrators, foremen and other water supply categories. He shall keep Brazilian training officials appraised of the latest developments both in technical water supply methods and teaching

procedures. He shall assist in the establishment and expansion of permanent training centers where may be taught technics of water supply and sewerage administration, operation and maintenance.

2. The Training Advisor shall assist universities in developing courses at which professional water supply and sewerage personnel may receive instruction. He shall encourage field training projects by university staffs. He shall assist universities in the development and advise on the use of laboratory facilities, research and training in water supply production and distribution.

3. He shall encourage the development and assist in the conduct of short courses by FSESP and other agencies for engineers in specific sanitary engineering subjects such as water supply design and planning, administration, and laboratory control of water quality and of health hazards. He shall arrange for attendance at and assist in the selection of candidates to attend specialized engineering or short courses in the United States especially those at Akron for operation and maintenance, Minnesota for ground water development and at the RATSEC and Neosho, and at North Carolina for design. In so doing he shall utilize the services offered under contract to A.I.D.

4. The Training Advisor shall periodically evaluate the effectiveness of the training courses received by Brazilians both in Brazil and in the United States. He shall also monitor or follow up those students in the NE who are taking correspondence courses in water supply from the Pennsylvania State University or other extension outlets (schools). He shall report on these matters to the Sanitary Engineer Advisor, USAID Water

Supply Division.

5. The Training Officer shall maintain close contact and relationship with the water supply programs in the state of Ceara and other northeastern states and shall relate the training programs to the realities of field conditions in water supply development, operation and maintenance.

6. He shall assist FSESP and other proper agencies to develop water supply and sewerage research and investigations related to the training programs. He shall encourage operating agencies and universities to collect and evaluate data necessary for establishment of realistic standards of water supply quality and practice in the NE.

7. When called upon to do so the Training Officer shall assist FSESP and other proper agencies in planning and administering water supply programs in the NE especially regarding design, operation and maintenance.

PERFORMANCE REQUIREMENT

1. TRAINING: The Training Advisor shall be a graduate of a recognized school of engineering, and shall have satisfactory graduate training. It is desirable that he possess a license as a registered professional engineer. He shall have or shall acquire a working knowledge of the Portuguese language. It is desirable that the Training Advisor have completed short courses related to the production and distribution of potable water.

2. EXPERIENCE: He shall have had at least 10 years experience in water supply development and some experience related to water supply training. He shall possess a good working knowledge and understanding of the management, operation, design and maintenance of water supply systems. It is desirable that he possess a license as a water treatment plant operator.

3. RELATIONS TO THE PUBLIC: He shall show evidence of the ability to conduct cordial relations with the public and shall have demonstrated leadership ability and professional accomplishment. He shall demonstrate the ability to work in the cultural environment of NE Brazil.

4. TRAVEL: The Training Advisor must be accustomed to air travel and should be prepared to spend such time in such traveling as may be required to properly prosecute the work.

5. CONTACTS: The Training Advisor shall develop and maintain effective contacts with the Directors and other key personnel of cooperating agencies; Directors and professors of Schools of Engineering (sanitary); and with Federal, State and municipal authorities as may be required.

APPENDIX IV

Essential Documents

A. PIO/T 512-062-2-50135

B. PIO/T 512-062-2-50256

C. PASA Budget Plans

[X] WORK SHEET [ ] ISSUANCE — PAGE 1 OF 4 PAGES

AID 12-1 (4-59) PIO/T

PROJECT IMPLEMENTATION ORDER
Technical Services
AGENCY FOR INTERNATIONAL DEVELOPMENT
UNITED STATES OF AMERICA

COOPERATING COUNTRY: Brazil

PIO NUMBER: 512-062-2-50135

PROJECT TITLE: 512-11-520-062
NATIONAL WATER SUPPLY AND SEWAGE

4. APPROPRIATION SYMBOL	5. ALLOTMENT SYMBOL & CHARGE	6. OBLIGATION STATUS	7.
72-11X1010	595-50-512-32-69-51	[X] ADMINISTRATIVE RESERVATION	ORIGINAL [X]
[ ] AID/W [X] USAID		[ ] OBLIGATION [ ] SUB OBLIGATION	AMENDMENT NO

8. NUMBER OF TECHNICIANS	9. DESIRED EFFECTIVE PERIOD	10. DURATION (MONTHS)
1	FROM: Present TO: ASAP	OF SERVICES: 8 months OF FINANCING: 8 months

11. TYPE OF ACTION

				IMPLEMENTING AGENT
(A) AID CONTRACT		(C) COUNTRY CONTRACT		AID/W
(B) SERVICE AGREEMENT	X	(D) OTHER		

FINANCING	PREVIOUS (F)	INCREASE (E)	DECREASE (G)	TOTAL TO DATE (H)
12. AID $		$17,000		$17,000
13. COOP. COUNTRY $		-0-		-0-

14. INSTRUCTIONS TO IMPLEMENTING AGENT

To be a Participating Agency Service Agreement between the United States Agency for International Development (AID) and the United States Public Health Service (USPHS) for activities authorized under the Agreement between of the United States of Brazil and United States of America, signed April 13, 1962.

USAID REFERENCES

15. SPECIAL PROVISIONS

1. This PIO is subject to AID contracting regulations

2. Except as specifically authorized by AID/W, or when local hire is authorized under the terms of a contract with a U.S. Supplier, services authorized under this PIO/T must be obtained from U.S. Sources.

DATE	USAID CLEARANCES	DATE
Oct 19, 1964	PC Cullum CWS A.W. Moseby: Chief ER S.S. Nowak: CONT H.C. Santos: EXO	10/26/64 10/26/64
	FAC W.R. Trigg: PROGRAM	DATE OF ORIGINAL ISSUANCE: November 3, 1964 DATE OF THIS ISSUANCE:

FOR THE COOPERATING COUNTRY

The terms and conditions set forth herein are hereby accepted:

By: Jean Jacques Mancean
Superintendent of FSESP
SIGNATURE

FOR THE DIRECTOR, AID

Donor M. Lion, Director
USAID/Northeast Brazil

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[X] WORK SHEET [ ] VARIANCE PAGE 2

AID 12-1A (4-59) PIO/T/S

PROJECT IMPLEMENTATION ORDER
Technical Services
Scope of Work
AGENCY FOR INTERNATIONAL DEVELOPMENT
UNITED STATES OF AMERICA

3. COOPERATING COUNTRY: Brazil

4. PROJECT NO. AND TITLE: 512-11-520-062
NATIONAL WATER SUPPLY AND SEWAGE

5. PROJECT NO. AND TITLE: 512-062-2-50135

6. SCOPE OF TECHNICAL SERVICES (including local recruitment, procurement & training)

This consultant will work with FSESP, SUDENE and various other Federal and State agencies in the administration of a training program for water works personnel in the Northeast. He will assist in the establishment of suitable schools, educational and training courses and course content in cooperation with Brazilian agencies. He will assist Brazilian governmental agencies and cities in developing operational plans which will provide acceptable standards of operation. Consultant will make inspection trips to determine compliance with agreements, contracts and specifications. He will observe the operation of various departments.

He will also assist in preparing and carrying out such other National Water Supply and Sewage programs as indicated by the USAID/Brazil Mission Director.

AID FINANCING	COOPERATING COUNTRY FINANCING
$17,000	-0-

7. SCOPE OF ACCESSORY SERVICES (i.e., procurement & training outside cooperating country).

NONE.

	PROCUREMENT	TRAINING
AID FINANCING	-0-	-0-
C. C. FINANCING	-0-	-0-

8. TECHNICIANS (number, kinds, periods of employment)

The consultant must be a registered professional engineer in the U.S. His experience shall have included work with a municipal or private water utility. It is desirable that the consultant have had water works and sewerage system design and administration experience. Graduate study in sanitary engineering is desired but not required. Past participation in training seminars or schools for water works and/or sewage works operators is desirable. The consultant shall be qualified to assist Brazilian universities in establishment of administrative and professional courses in water and sewerage utilities. University level teaching experience is desirable but not required.

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☒ WORK SHEET ☐ ISSUANCE PAGE 3

AID 12-1B (4-59) PIO/T/C	PROJECT IMPLEMENTATION ORDER Technical Services Scope of Work – Continued AGENCY FOR INTERNATIONAL DEVELOPMENT UNITED STATES OF AMERICA	1. COOPERATING COUNTRY Brazil	2. PIO NUMBER 512-062-2-30135
		3. PROJECT TITLE 512-11-520-062 NATIONAL WATER SUPPLY AND SEWAGE	

19. PROGRAM REPORTS (kinds by content, frequency, no. of copies, languages, recipients, etc.):

Final: Report on training program

Progress: Monthly progress reports

Other: As requested

20. TIME SPAN AND LOCATION OF SERVICES:

Consultant will work for a period of 3 months in Recife and in other locations in Brazil as required.

This PIO/T will cover financing of a PASA for the remainder of FY'65. However, the Mission will need the services of this training engineer for a total period of 24 months. USAID/B expects to renew the funding for this PIO/T in FY'66.

21. RELATIONSHIP TO COOPERATING COUNTRY AND AID:

Consultant will work with States, municipalities, SUDENE, FSESP, and USAID/Brazil. He will work under the supervision of the Chief of the Water Supply Branch in carrying out the policies of the USAID/Brazil Mission Director.

C. C. Liaison Official:

Superintendent FSESP.

22. AVAILABILITY OF BACKGROUND INFORMATION:

Contractor shall have access to USAID/B and FSESP files on water projects as necessary.

ACCESS REQUIRED — Security Information: None; Restricted premises: None

23. LOGISTIC SUPPORT IN KIND (If types, extent and contributing parties; privileges):

1. USAID/Brazil will provide office space and secretarial service as required.
2. APO mailing, PX and Commissary privileges will be provided as available.
3. Local travel in Brazil for official purposes will be provided by USAID/Brazil/HE and will be charged to this project.
4. International travel to Brazil and return to the United States for dependents, as well as quarters and education allowances, should be financed under the contract.
5. Household furnishings will be provided by USAID/Brazil.
6. Technician will have the same import privileges as a regular direct hire American Foreign Service employee.

☒ WORK SHEET ☐ INSTANCE PAGE 4

AID 12-1C (4-59) PIO/T/F	PROJECT IMPLEMENTATION ORDER Technical Services Financial Agreement AGENCY FOR INTERNATIONAL DEVELOPMENT UNITED STATES OF AMERICA	1. COOPERATING COUNTRY Brazil	2. PIO NUMBER 512-062-2-50135
		3. PROJECT TITLE 512-11-520-062 NATIONAL WATER SUPPLY AND SEWAGE	

24. COOPERATING COUNTRY FINANCING - Pursuant to the Standard Provision 1 of the Project Agreement signed on , and subject to the limitation of the Total To Date in block 13, above, the Cooperating Country will provide, all cooperating country currencies required for expenditures within the cooperating country, during the period starting on the Date of This Issuance, above, and ending on the Final Contribution Date of , authorized under this Project Implementation Order, with the exception of the following types of expenditures which AID hereby agrees and undertakes to assume:

N. A.

As of the effective date of any contract or agreement executed under this order the Cooperating Country will establish in the name of the contractor a local currency advance account in the amount of:

25. AID FINANCING - ~~Pursuant to the Standard Provision of the Project Agreement~~ subject to the limitation of the Total To Data in block 12, above, AID will provide all US dollar currencies required for expenditures, during the period starting on the Date of This Issuance, above, and ending on the Final Contribution Date of JUNE 30, 1965 authorized under this Project Implementation Order, with the exception of the following types of expenditures which the Cooperating Country hereby agrees and undertakes to assume: NONE; all costs of the Technicians to be procured from the US Public Health Service under this PIO/T, will be paid by USAID.

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AID 1320-1 (6-63)

CONTINUATION SHEET

FORM SYMBOL

PIO/T

DEPARTMENT OF STATE
AGENCY FOR
INTERNATIONAL DEVELOPMENT

TITLE OF FORM

PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES

☒ Worksheet ☐ Issuance

PAGE 1 OF 1 PAGES

1. Cooperating Country: Brazil

2a. Code No.: 512-062-2- 50256

2b. Effective Date:

2c. ☒ Original ☐ Amendment No.

3. Project/Activity No. and Title:
512-11-520-062
National Water Supply and Sewage Training Centers

Indicate block numbers.

Use this form to complete the information required in any block of a PIO or PAA form.

For internal use only

BUDGET ESTIMATE FY 65

D H E W / P H S P A S A

U S A I D / B r a s i l

	11-State Area
Salary - 2 Training Advisors - 3 mos. at 16,300	$ 8,200
Assignment to Post Cost - 2 at $5000	$ 10,000
Language Aptitude, US Testing - at $400	$ 800
Household Effects Storage - 2 at $800/4	$ 400
Travel - 4 Short-term consultants (30 day)	
Per Diem 4 x 35 x $18 = 2,500	
Int'l Tvl. 4 x $630 = 2,600	$ 5,100
Salary - 1 Short-term cons. at $1300 /Mo.	$ 1,300
Training Equipment, Films, etc.	$ 1,600
Administration Cost DHEW/PHS (10%)	$ 2,800
Total FY 65 Cost	$ 30,200
Rounded to	$ 30,000

Includes 2 TDY consultants for SURSAN to start program while Advisors are in language training; 1 TDY consultant for FSESP to start program ahead of permanent assignment; and 1 TDY for DHEW/PHS Supervisor.

TDY FSESP Consultant and TDY Supervisor to coordinate Technical Activities of 11-State Area with those of 9-State NE Area where other Training Advisor of DHEW/PHS is developing program under PIO/T NE-512-062-2-50135, Proj. 512-11-520-062 NWS & S.

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AID 1380-1 (6-63)

PIO/T

DEPARTMENT OF STATE
AGENCY FOR
INTERNATIONAL DEVELOPMENT

PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES

[X] Enrichment [ ] Issuance

PAGE 1 OF PAGES 10

1. Cooperating Country: Brazil

2. PIO/T No.: 512-062-2- 50256

3. Project/Activity No. and Title: 512-11-520-062 National Water Supply and Sewage Training Centers

4. Appropriation Symbol: 72-1151010

5. a. Allotment Symbol & Charge: 595-50-512-32-69-51

5. b. Funds Allotted to: [ ] AID/W [X] Mission

6. Obligation Status: [X] Administrative Reservation [ ] Obligation [ ] Sub-Obligation

7. [X] Original or Amendment No.: _____

8. No. of Technicians: 2 -Full time, 4 -Short Term

9. Services to Start (Mo., Day, Yr.) Between: April, 1965 And:

10. Duration (Months) 2 years a. Of Services 24 b. Of Financing 3 mos.

11. a. Type of Action: [ ] AID Contract [ ] Cooperating Country Contract [X] Participating Agency Service Agreement [ ] Other

11. b. Authorized Agent: AID/W through the Department of Health, Education and Welfare DHEW/PHS

Financing $1.00 =	A. Previous Total	B. Increase	C. Decrease	D. Total to Date
12. AID Financing a. Dollars		30,000		30,000
b. U.S.-Owned Local Currency				
13. Cooperating Country Contributions a. Counterpart				
b. Other				

14. Blanket References

15. Objective for which the Technical Services are to be used (Describe)

USAID is to enter into agreement with DHEW/PHS to further develop the training program of the Water Supply Division in the categories of a) training of non-professional and professional water supply and sewerage personnel for municipal, state, regional, and federal areas in Brazil, in 11 states other than in the 9 in the Northeast, working with the Ministry of Health, Foundation of Special Public Health Services (FSESP), and b) in training of water supply and sewerage personnel at all levels for large cities, working with the Guanabara Superintendancy of Urbanization and Sanitation (SURSAN).

(Continued on Page 7)

16. Mission Clearances	Date	Mission Clearances	Date
E.G.Wagner, WSD	17/Mar/65	F.A.Guerin, EXEC	
N.N.Vogel, OPR	17/Mar/65	N.K.Marsh, LD	19/3/65
J.F.Dolarac, CSO		C.J.Knowlan, CONTR	3/18/65

17. Date of Original Issuance

18. Date of this Issuance: 3/25/65

19. For the Cooperating Country: The terms and conditions set forth herein are hereby agreed to:

President - SURSAN — Date

SIGNATURE — DATE

Superintendant - FSESP

TITLE

20. For the Agency for International Development

SIGNATURE

TITLE

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AID 1350-1 (6-63)

PIO/T

DEPARTMENT OF STATE
AGENCY FOR
INTERNATIONAL DEVELOPMENT

PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES

☒ Worksheet ☐ Issuance

Cooperating Country: Brazil

PIO/T No.: 512-062-2 -50256

Project/Activity No. and Title:
512-11-520-062
National Water Supply and Sewage Training Centers

SCOPE OF WORK

21. Scope of Technical Services:

A. Description

Technicians will render advice and guidance in the following positions or areas:

1. Training Advisor - Water Supply and Sewage Program, (11 States)
(Full-Time)

This advisor shall with the concurrence of the Fundação Serviço Especial de Saúde Publica (FSESP) and with the guidance of the Sanitary Engineering Advisor (training) in the USAID Water Supply Division, assist FSESP and other Brazilian agencies in the development and conduct of permanent water supply training programs for professional and sub-professional personnel, coordinating with those in Northeast Brazil. His duties shall primarily be carried out in Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Espírito Santo, Minas Gerais, Goiás, Pará, Amapá and Amazonas, and:

1.- The Training Advisor shall assist the FSESP Training Personnel in the planning, conduct and evaluation of training courses provided for administrators,

(continued on Page 7)

B. Technicians

(1) (a) Number	(b) Specialized Field	(c) Grade and/or Salary	(d) Duration of Assignment (Man-Months)	FY 65 Funding
1	Senior San.Engr.Training Advisor	(Director Grade)	24 mos.	3 mos.
1	Sanitary Engr.Training Advisor	(Director Grade)	24 mos.	3 mos.
1	Sanitary Engr.Training Advisor	(Director Grade)	35 days	35 days
1	Sanitary Engr.Training Advisor	(Director Grade)	35 days	35 days
1	Sanitary Engr.Training Advisor	(Director Grade)	35 days	35 days
1	Sanitary Engr.Training Advisor	(Director Grade)	- - -	35 days

(2) Duty Post and Duration of Technicians' Services:

Training Advisor - (11 States) - Belo Horizonte,MG or Rio de Janeiro,GB - 24 mos.
Training Advisor - (SURSAN) - Rio de Janeiro, GB .... - 24 mos.

(3) Access to Classified Information:

Security clearance through Confidential.

(4) Dependents: ☒ Will ☐ Will Not Be Permitted to Accompany Technician: Dependents of short-term Training Consultants will not be permitted at government expense.

C. Financing Costs of Technical Services:

(1) By AID - $ 30,000

(2) By Cooperating Country -
In kind

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AID 1380-1 (6-63)

PIO/T

DEPARTMENT OF STATE
AGENCY FOR
INTERNATIONAL DEVELOPMENT

PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES

☒ Worksheet ☐ Issuance

PAGE 3 OF 10 PAGES

Cooperating Country: Brazil

PIO/T No.: 512-062-2-50256

Project/Activity No. and Title:
512-11-520-062
National Water Supply and Sewage Training Centers

22. Equipment and Supplies (Related to the services described in Block 21 and to be procured outside the Cooperating Country by the supplier of these services) As approved by WSD/USAID/B and DHEM/Brazil

A. (1) Quantity	(2) Description	(3) Estimated Costs
NA	Training films and literature	$ 1,000
NA	Miscellaneous minor Engineering supplies and equipment	$ 600
	Total	$ 1,600

B. Financing Costs of Equipment and Supplies

(1) By AID -- $ 1,600 (2) By Cooperating Country --

23. Instructions to Authorized Agent

This establishes training advisor services provided under FY-65 Budget, requesting effective date of PASA as April 1, 1965 under WSD/USAID/Brazil expected plans to extend for period of 2 years.

24. Special Provisions

1. This PIO/T is subject to AID Contracting Regulations.

2. Except as specifically authorized by AID/W or when local hire is authorized under terms of the contract, with a US Supplier, services under the PIO/T must be obtained from US sources.

3. Except as specifically authorized by AID/W the purchase of commodities authorized under this PIO/T will be limited to countries included in AID Geographic Code 000.

AID 1380-1 (8-68)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	☒ Worksheet ☐ Issuance	PAGE 4 OF 10 PAGES
PIO/T		Cooperating Country Brazil	PIO/T No. 512-062-2-50256
	PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	Project/Activity No. and Title 512-11-520-062 National Water Supply and Sewage Training Centers	

25. Reports by Supplier of Services (*Indicate type, content and format of reports required, including language to be used if other than English, frequency or timing of reports and any special requirements*)

End of Tour Reports as required by USAID/Brazil, Progress Reports as required by USAID/Brazil and DHEW/PHS. Other reports as required.

26. Availability of Background Information (*Additional information useful to Authorized Agent and Prospective Suppliers; if necessary, cross reference Block 21.B(3) above*)

Project documents, correspondence, reports, etc., in USAID/Brazil, SURSAN, FSESP, SUDENE, and other agencies will be available to the technicians.

27. Relationships of Supplier to Cooperating Country and to AID.

A. Relationships and Responsibilities

Work will be done in cooperation with FSESP, and with federal, regional, state, and municipal sanitary engineering agencies in the eleven-state area. In Guanabara, basic cooperation will be with SURSAN, its Water, Sewer, Finance, and Sanitary Engineering Institute Divisions. DHEW/PHS advisors are to be technically responsible to DHEW/PHS/W and administratively responsible to the Mission Director USAID/Brazil.

B. Cooperating Country Liaison Official

C. AID Liaison Officials

USAID Chief Engineer

AID 1350-1 (8-69)

PIO/T

DEPARTMENT OF STATE
AGENCY FOR
INTERNATIONAL DEVELOPMENT

PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES

☒ Worksheet ☐ Issuance

PAGE 5 OF 10 PAGES

Cooperating Country: Brazil

PIO/T No.: 512-062-2-50256

Project/Activity No. and Title:
512-11-520-062
National Water Supply and Sewage Training Centers

LOGISTIC SUPPORT

23. Provisions for Logistic Support

A. Specific Items (Insert "X" in applicable column at right. If entry needs qualification, insert asterisk and explain below in C. "Comments")

		In Kind Supplied By		From Local Currency Supplied By	
		AID	Cooperating Country	AID	Cooperating Country
	(1) Office Space	X	X		
	(2) Office Equipment	X			
	(3) Housing and Utilities	X			
	(4) Furniture	X			
	(5) Household Equipment (Stoves, Refrig., etc.)	X			
	(6) Transportation in Cooperating Country	X			
	(7) Interpreter Services				
Other (Specify)	(8) Local per diem when away from post	X			
	(9) Translation services	X	X		
	(10) Transportation of automobile	X			
	(11) Language Training (after aptitute test)	X			
	(12)				
	(13) Secretarial Services (some)	X	X		
	(14)				
	(15)				

B. Additional Facilities Available From Other Sources

Logistic support will be the same as for direct-hire technicians, including commissary, PX and APO privileges to the extent permitted by local regulations.

C. Comments

USAID/Brazil will provide travel and transportation of dependents, household furnishings and equipment, education allowances. Local per diem and allowances will be provided by USAID/Brazil and are not included in funding under this PIO/T. TDY personnel will be paid per diem from funds obligated by this PIO/T.

AID 1350-1 (9-68)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	☒ Worksheet ☐ Issuance	PAGE 6 OF 10 PAGES
PIO/T	PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	Cooperating Country: Brasil	PIO/T No.: 512-062-2- 50256
		Project/Activity No. and Title: 512-11-520-062 National Water Supply and Sewage Training Centers	

FINANCIAL AGREEMENT

29. A. Cooperating Country Financing

[redacted] subject to the amount shown in Block 13.D above, the Cooperating Country will provide all local currencies required for the expenditures within the country, during the period starting on the *Date of this Issuance* (Block 18 above) and ending on the *Final Contribution Date* of the [PROAG or other enabling document]: None authorized under this Project Implementation Order, with the exception of the following types of expenditures, which AID hereby agrees to assume:

See Block 28.

B. As of the effective date of any contract or agreement executed under this Order, the country will establish in the name of the supplier of the services described herein, a local currency advance in the amount of: _____

30. AID Financing

[redacted] subject to the limitation of the Total to Date as shown in Block 12.D above, AID will provide all U.S. Dollar Currencies required for expenditures, during the period starting on the *Date of this Issuance* (Block 18 above), and ending on the *Final Contribution Date* of December 31, 1965 authorized under this Project Implementation Order, with the exception of the following types of expenditures which the Cooperating Country hereby agrees to assume:

None.

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AID 1300-1 (3-63) CONTINUATION SHEET	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	☒ Worksheet ☐ Issuance	PAGE 7 OF 10 PAGES
		1. Cooperating Country Brazil	2.a. Code No.
FORM SYMBOL PIO/T	TITLE OF FORM PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	2.b. Effective Date	2.c. ☒ Original OR Amendment No:
		3. Project/Activity No. and Title 512-11-520-062 National Water Supply and Sewage Training Centers	

Indicate block numbers. Use this form to complete the information required in any block of a PIO or PAA form.

Block 15 (Continued from Page 1)

Two full-time suitably qualified sanitary engineer training advisors capable of speaking Portuguese, shall be furnished by DHEW/W, one for each category (detailed in Block 21), each with at least 10 years experience applicable to his category of training, each capable of assisting in the development of both sub-professional and professional personnel as well as with service staff development, one to be designated as liaison officer.

DHEW/PHS is to provide four competent short-term advisors for training and evaluation consultations to assist Brazilian agencies in the organization, supervision and evaluation of the training activities.

Block 21 (Continued from Page 2)

mechanics, operators, foremen, and other water supply categories. He shall keep Brazilian training officials appraised on the latest developments both in technical water supply methods and teaching procedures. He shall assist in the establishment and expansion of permanent training centers where may be taught technics of water supply and sewerage administration, operation and maintenance.

2. The Training Advisor shall assist universities in the development and advice on the use of laboratory facilities, research and training in water supply production and distribution.

3. He shall encourage the development and assist in the conduct of short courses by FSESP and other agencies for engineers as needed in specific sanitary engineering subjects such as water supply design and planning, administration, and laboratory control of water quality, of health hazards. He shall arrange for attendance at and assist in the selection of candidates to attend specialized engineering and short courses in the United States especially those at Akron for management, operation and maintenance, Minnesota for ground water development, at the RATSEC, at Neosha, and at North Carolina for design. In so doing he shall utilize the services offered under contract to AID.

4. The Training Adviser shall build into the training courses for all categories the concept of developing attitudes conducive to proper maintenance of water supply and sewer systems. For example, he could teach that a well appearing and well kept plant is indicative of a well operated plant. He shall endeavor to promote the practice of taking care of

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(Continued on Page 8)

AID 1300-1 (6-63) CONTINUATION SHEET	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	[X] Worksheet [ ] Issuance	PAGE 8 OF 10 PAGES
		1. Cooperating Country Brasil	2.a. Code No.
FORM SYMBOL PIO/T	TITLE OF FORM PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	2.b. Effective Date	2.c. [ ] Amendment [X] Original OR No.
		3. Project/Activity No. and Title 512-11-520-062 National Water Supply and Sewage Training Centers	

Indicate block numbers. Use this form to complete the information required in any block of a PIO or PAA form.

Block 21

(Continued from page 7)

problem situations when they arise and not allow them to deteriorate.

5. The Training Advisor shall periodically evaluate the effectiveness of the training courses received by Brazilians both in Brazil and in the United States. He shall also monitor or follow up those students who are taking correspondence courses in water supply from the Pennsylvania State University or other extension outlets (schools). He shall report on these matters to the Sanitary Engineer Advisor, USAID Water Supply Division.

6. The Training Officer shall maintain close contact and relationship with the water supply programs in the Brazilian States and shall relate the training programs to the realities of field conditions in water supply development, operation and maintenance.

7. He shall assist FSESP and other proper agencies to develop water supply and sewerage research and investigation related to the training program. He shall encourage operating agencies and universities to collect and evaluate data necessary for establishment of realistic standards of water supply quality and practice.

8. When called upon to do so, the Training Officer shall assist FSESP and other proper agencies in planning and administering water supply programs especially regarding design, operation and maintenance.

9. When called upon to do so, the Training Officer shall assist FSESP and other proper agencies in planning and administering water supply programs in the Northeast, especially regarding design, operation and maintenance.

1 Training Advisor - Water Supply and Sewage Program (SURSAN)
(Full-Time)

This Advisor to the Superintendência da Urbanização e Saneamento (SURSAN) shall, with the concurrence of SURSAN and with the guidance of the Sanitary Engineering Advisor (Training) in the USAID Water Supply Division, assist SURSAN in the development and conduct of water supply and sewer department personnel training programs. He shall consult in technical matters with the Directors and work closely with their operating and maintenance division.

The Training Advisor (SURSAN) shall maintain liaison with the Director, Instituto de Engenharia Sanitária (IES). His duties shall include:

(continued -- Page 9)

AID 1300-4 (8-63) CONTINUATION SHEET	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	☒ Worksheet ☐ Issuance	PAGE 10 OF 10 PAGES
		1. Cooperating Country Brasil	2.a. Code No.
FORM SYMBOL	TITLE OF FORM	2.b. Effective Date	2.c. ☒ Original OR No. ____ Amendment
PIO/T	PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	3. Project/Activity No. and Title 512-11-520-062 National Water Supply and Sewage Training Centers	

Indicate block numbers.

Use this form to complete the information required in any block of a PIO or PAA form.

Block 21

(Continued from Page 9)

7. He shall assist SURSAN in training for developing water supply and sewerage research and investigations. He shall encourage the collection and evaluation of data necessary for establishing realistic standards of water supply quality and practice. He shall consider the usefulness of computers and shall promote such use if feasible. In the conduct of these and other duties he shall determine the need for and arrange for the use of the services of consultants.

4 Training Consultants - Water Supply and Sewerage Program (Short-Term)

DHEW/PHS consultants are to be provided for four short-term program director visits to work with theDHEW/PHS Advisors, the USAID Sanitary Engineer Advisor, SURSAN, FSESP, and other federal agencies, as required. It is anticipated that consultants furnished under the FY-65 funds will work with these Brazilian agencies to initiate new program developments while the full-time Advisors are completing language training and to provide essential technical orientation to the Advisors. Thereafter, plans are to program three consultations each year to provide basic technical guidance and direction to the PHEW/PHS Advisors.

AID 1300-1 (5-63) CONTINUATION SHEET	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	☒ Worksheet ☐ Issuance	PAGE 9 OF 10 PAGES
FORM SYMBOL	TITLE OF FORM	1. Cooperating Country Brazil	1a. Code No.
PIO/T	PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	1b. Effective Date	1c. ☒ Original OR Amendment No.
		3. Project/Activity No. and Title 512-11-520-062 National Water Supply and Sewage Training Centers	

Indicate block numbers.

Use this form to complete the information required in any block of a PIO or PAA form.

Block 21

(Continued from page 8)

1. The Training Advisor shall assist SURSAN in the planning, development, conduct and evaluation of training courses as needed for sub-professional personnel to improve operation and maintenance of the water and sewer systems, particularly in the categories of such as water plant operator, mechanics, meter reader, water system foremen, sewer system foremen, laboratory chemist, and laboratory bacteriologist. He shall keep SURSAN appraised of the latest developments both in technical water supply methods and teaching procedures.

2. The Training Advisor shall appraise himself of the problems which exist in the operation and maintenance of the Guanabara water supply and sewer system. He shall particularly determine the causes of water losses in the system and shall build into the training course instruction in methods of avoiding and correcting such losses. For example, particular attention should be paid to such subjects as pipe tapping, inter connections and proper pipe laying methods.

3. The Training Advisor shall build into the training courses for all categories the concept of developing attitudes conducive to proper maintenance of water supply and sewer systems. For example, he could teach that a well appearing and well kept plant is indicative of a well operated plant. He shall endeavor to promote the practice of taking care of problem situations when they arise and not allow them to deteriorate.

4. He shall encourage the development and assist in the conduct of short courses by SURSAN for professional personnel working in waterworks and sewerage activities. These courses might be in such subjects as administration, laboratory control of water quality and the control of health hazards. He shall determine the need for and aid in the solution of professional personnel to attend specialized courses in the States at such training centers as the R.A. Taft Sanitary Engineering Center, North Carolina University, Minnesota University, Akron, and the Water and Sewerage Technical School, Neosho.

5. The Training Advisor shall periodically evaluate the effectiveness of the training programs.

6. When called upon to do so, the Training Advisor shall assist SURSAN in planning and administering the water supply and sewerage programs of Guanabara State especially regarding design, operation and maintenance.

(Continued on Page 10)

AID-2-3 (6-64)

PASA BUDGET PLAN By Object Class

PARTICIPATING AGENCY SERVICE AGREEMENT WITH:

BUDGET PLAN FOR FY 1965

AMOUNT:
APPROPRIATION
ALLOTMENT

PASA CONTROL NO.

PIO/T NO. (8) 512-062-2-50135*
512-062-2-50256

Position	Class. Grade	FC Grade	Rate	Man Years	Salary	Differential	11 TOTAL	12 Personnel Benefits	21 Int'l.* Travel	22 Transportation of Things	TOTAL
* Water Supply Training Advisor (PSESP) Recife	SED	4(3)	$15,015	1/12	$1252	0	$1252	$45	$1500	$1615	$4412
Water Supply Training Advisor (PSESP) Rio	SED	4(2)	$14,595	1/12	$1218	0	$1218	$44	$1500	$1615	$4377
Water Supply Training Advisor (SURSAN) Rio	SED	4(2)	$14,595	1/12	$1218	0	$1218	$44	$1500	$1615	$4377
Water Supply Training Consultant (Rio)	SED	4(2)	$14,595	1/12	$1218	0	$1218	0	$1230	0	$2448
Water Supply Staff Engineer (Washington) (Overhead)	Full Grade		$8,118	1/12	$677	0	$677	$217	0	0	$894***
Water Supply Training Consultants (3)	SED	4(2)	$14,595	1/12	0	0	0	0	$3690	0	$3690
										TOTAL	$19,304

23 Rent, Communications, Utilities	-
26 Supplies and Materials	-
31 Equipment **	$1600
7 Security Clearances @ $390.00 each	$2730
Language aptitude test, 3 @ $400.	$1200
Overhead 15 %	$3725
GRAND TOTAL	$28,559.

** Visual Aid Equipment
*** Non Add. - Part of Overhead

*Estimated Per Diem:

AID-2-3 (6-64)

PASA BUDGET PLAN By Object Class

PARTICIPATING AGENCY SERVICE AGREEMENT WITH:

BUDGET PLAN FOR FY 1966 & 1967

AMOUNT:
APPROPRIATION
ALLOTMENT

PASA CONTROL NO.

PIO/T NO. (a) 512-062-2-50135*
512-062-2-50256

Position	Class. Grade	FC Grade	Rate	Man Years	Salary	Differential	11 TOTAL	12 Personnel Benefits	21 Int'l.* Travel	22 Transportation of Things	TOTAL
* Water Supply Training Advisor (Recife)	SED	4(3)	$15,015	2	$30,030	0	$30,030	$1088	$1500	$2375	$34,993
Water Supply Training Advisor PSESP - Rio	SED	4(2)	$14,595	2	$27,190	0	$29,190	$1058	$1500	$2375	$34,123
Water Supply Training Advisor SURSAN - Rio	SED	4(2)	$14,595	2	$29,190	0	$29,190	$1058	$1500	$2375	$34,123
Water Supply Staff Engineer Washington	Full Grade		$ 8,118	1-1/3	$10,797	0	$10,797	$3470	$2460	0	$16,727***
Water Supply Training Consultants (3)	SED	4(2)	$14,595	1/12/yr	0	0	0	0	$7485	0	$ 7,485

** Visual Aid & Laboratory Equipment
*** Non Add - Included in Overhead

TOTAL	$110,724
23 Rent, Communications, Utilities	-
26 Supplies and Materials	3,000
31 Equipment **	7,000
Overhead 15 %	18,109
GRAND TOTAL	$138,833

*Estimated Per Diem: